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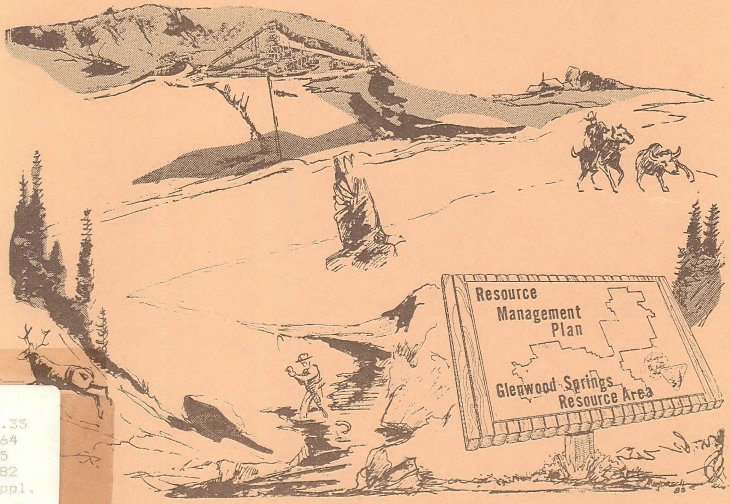

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WILDERNESS SUITABILITY ANALYSIS
FOR THE
GLENWOOD SPRINGS RESOURCE AREA

GRAND JUNCTION DISTRICT
COLORADO

Technical Supplement
to the
Glenwood Springs Resource Management Plan
Draft Environmental Impact Statement

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INTRODUCTION

Purpose and Need

This Wilderness Suitability Analysis is a technical supplement to the draft environmental impact statement (DEIS) for the Glenwood Springs Resource Management Plan and analyzes the potential impacts of wilderness designation or non-designation of four Wilderness Study Areas (WSAs) totalling 30,630 acres. The Wilderness Study Areas under study are (see Figure 1):

WSA	Acreage
Eagle Mountain (CO-070-392)	330
Hack Lake (CO-070-425)	3,360
Bull Gulch (CO-070-430)	15,000
Castle Peak (CO-070-433)	11,940
Total	30,630

The BLM's wilderness program is a result of the Federal Land Policy and Management Act (FLPMA) of 1976 (Public Law 94-579). Section 603(a) of FLPMA mandates a wilderness review of public land administered by the BLM. The wilderness review process developed by BLM to identify, evaluate, and recommend areas to Congress for consideration for preservation as wilderness consists of three phases:

1. Inventory--The purpose of the inventory phase is to identify those public lands that possess wilderness characteristics as defined by Congress in the Wilderness Act of 1964. These areas are identified as Wilderness Study Areas.

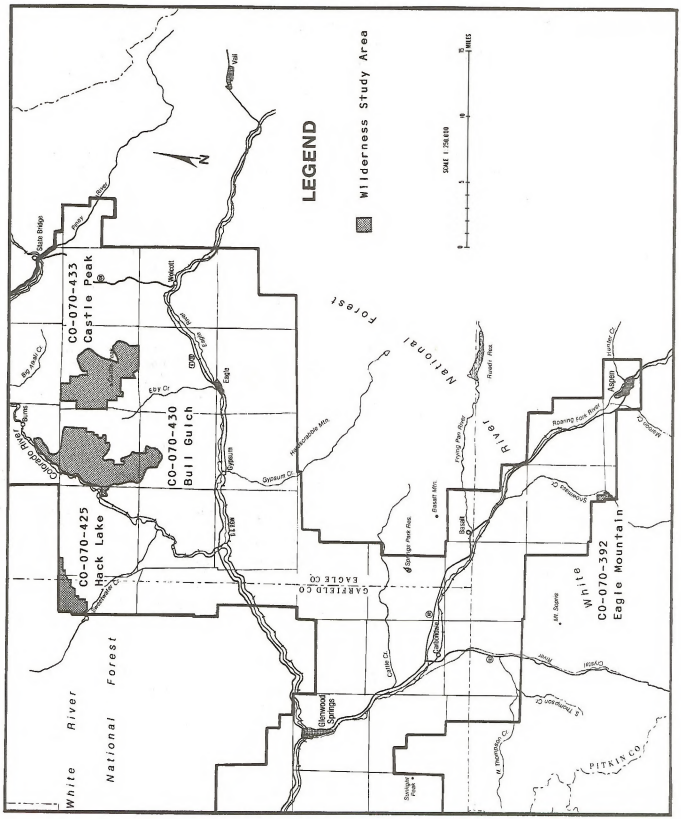
2. Study--The study phase involves the evaluation of wilderness values and other values, resources, and uses within the Wilderness Study Areas and the determination of which Wilderness Study Areas will be recommended as suitable or nonsuitable for wilderness designation. These evaluations and recommendations are made through the BLM's land use planning system using the criteria and quality standards listed in Appendix 1.

3. Reporting--The reporting phase consists of forwarding or reporting the suitable and nonsuitable recommendations through the Secretary of Interior and the President to Congress. Mineral surveys, environmental impact statements, and other appropriate information are also submitted with the recommendations.

The inventory phase was completed in November, 1980 and found these areas to possess wilderness characteristics and thus identified them as Wilderness Study Areas. The decision to identify Castle Peak as a WSA was protested, and subsequently appealed to the Interior Board of Land Appeals (IBLA). The IBLA affirmed Castle Peak as a WSA through a ruling in November, 1981.

The study phase for these four WSAs is being conducted through the Resource Management Plan for the Glenwood Springs Resource Area. Following completion of the Resource Management Plan, the recommendations for these WSAs will be compiled in a wilderness study report and submitted through the Secretary of the Interior and the President to Congress. The wilderness study report will be accompanied by a final environmental impact statement on the wilderness portion of the Resource Management Plan.

FIGURE 1
LOCATION MAP OF WILDERNESS STUDY AREAS
IN THE GLENWOOD SPRINGS RESOURCE AREA



Relationship of the Wilderness Suitability Analysis to the DEIS

The BLM's Wilderness Study Policy requires that the study analyses must be WSA specific and that "all wilderness", "no wilderness", and "no action" alternatives must be considered at a minimum. In addition, "partial wilderness" alternatives may be developed when appropriate to resolve resource conflicts or manageability considerations.

Quality Standards No. 2 and No. 3 (see Appendix 1) require the analysis of impacts on other resources from wilderness designation and the impact of non-designation on wilderness values. Because the management of resources varies in the four alternatives (Continuation of Current Management, Resource Protection, Economic Development, and Preferred Alternatives) in the DEIS, and thus, the impacts on other resources and wilderness values would also vary, it was not considered appropriate to arbitrarily select one of the wilderness alternatives (or options, as used in this document to avoid confusion with the DEIS alternatives) for inclusion in each DEIS alternative. For a more complete evaluation of the potential impacts of wilderness designation or non-designation within each WSA, the "all wilderness" and "no wilderness" options were analyzed in each DEIS alternative. When appropriate, a "partial wilderness" option was also analyzed. The "no wilderness" option in the Continuation of Current Management Alternative satisfies the requirement for a "no action" alternative.

This Wilderness Suitability Analysis contains the analyses for each WSA. From these analyses, a recommendation for suitability or nonsuitability for wilderness designation was made for each WSA in each alternative. These recommendations are presented in the DEIS.

This Wilderness Suitability Analysis should be used in conjunction with the DEIS. The DEIS contains more information on the alternatives and the management of the various resource programs. In addition, the maps in the DEIS Map Addendum show the locations of resources described in the affected environment and the management in each alternative.

ASSUMPTIONS

The following assumptions, specific to wilderness, and the assumptions in the DEIS were used in analyzing the environmental consequences:

1. The BLM is required by the FLPMA to recommend wilderness study areas as suitable or nonsuitable for designation as wilderness to Congress. Therefore, these recommendations must be made in all alternatives, including the Continuation of Current Management Alternative. Since the recommendations are to be made through consideration of the criteria and quality standards in the BLM's Wilderness Study Policy, suitable recommendations can be made in the Continuation of Current Management Alternative.

2. If designated as wilderness, each WSA will be managed according to the Wilderness Act of 1964 and the BLM's Wilderness Management Policy which provide guidance as to activities which are permissible within wildernesses. This guidance affects the study of each WSA in determining how wilderness and various resource values, including non-conforming uses, will be analyzed in the study. Certain activities which were occurring within the WSAs prior to the passage of FLPMA can continue. This also affects the study of each WSA in determining how these uses will be analyzed.

3. In determining the suitability of each WSA, other resource recommendations will be analyzed as though the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP) is not a factor. However, some recommendations may not be implementable unless a WSA is released from interim management following a non-designation decision by Congress. At this time, it is assumed a five-year IMP period will be necessary if a WSA is recommended as nonsuitable to allow for the wilderness study report, administrative review, the Secretary's recommendations, the President's recommendation, and Congress' decision. A ten-year IMP period is assumed if a WSA or portion of a WSA is recommended as suitable to also allow for the required U.S. Geological Survey and U.S. Bureau of Mines mineral reports. However, the IMP period may be longer as Congress has no time limit in which to make its decision. Additional analysis may be necessary at that time to determine if the recommendations have been affected by the delay in implementation.

4. Since each WSA has been determined to possess wilderness characteristics, each of the areas has the potential of being recommended as suitable for wilderness designation in its entirety. Expansion of units was not considered to be a viable alternative. Areas outside of the present boundaries of the WSAs were determined to lack wilderness characteristics during the wilderness inventory and expansion of the WSAs to include such areas would not enhance the values within the WSAs. Furthermore, expansion of the WSAs is not considered necessary for manageability.

5. The two WSAs which are less that 5,000 acres in size (Eagle Mountain and Hack Lake), meet the size criteria in the Wilderness Inventory Handbook only because they are contiguous to existing wildernesses administered by the U. S. Forest Service. Because of their small size, they are manageable for wilderness only as additions to the existing wildernesses.

6. Local social impacts of any suitable or nonsuitable wilderness recommendations are expected to be minimal. Relative to the currently available wilderness acreage and wilderness opportunities within and near the resource area, any proposals considered in this analysis would not significantly affect the quality of life or lifestyles.

7. No economic analysis of wilderness designation per se was included in this analysis. A study of wilderness in Colorado (Walsh 1981) estimated the economic value of wilderness by measuring wilderness recreation use and preservation values. These values were partially based on potential increases in wilderness acreage in Colorado. Because the study was not site specific, and because of the abundance of existing wilderness within and near the Glenwood Springs Resource Area and the relatively small acreage of the 4 WSAs, these values may not be appropriate. In addition, recreational use of the WSAs occurs without wilderness designation, and the enhancement or devaluation of current recreation activities as a result of designation cannot be estimated at this time. Furthermore, the preservation values of wilderness in the Walsh study are non-market values, and willingness to pay may be different from an actual expenditure if one was given the option of paying for the preservation of wilderness. However, the Walsh study does indicate that wilderness preservation has significant value, even to those who may never actually visit an area.

ANALYSIS OF WILDERNESS STUDY AREAS

EAGLE MOUNTAIN WILDERNESS STUDY AREA
CO-070-392

Affected Environment

Setting

The Eagle Mountain Wilderness Study Area (WSA), located west of Aspen and adjacent to the Maroon Bells-Snowmass Wilderness, contains approximately 330 acres of steep, mountainous topography with elevations ranging from 8,280 to 9,937 feet at the summit of Eagle Mountain. Figure 1 is a location map of the wilderness study areas in the Glenwood Springs Resource Area. Figure 2 is a map of the Eagle Mountain WSA.

Soils

The entire WSA consists of the Uracca-Mergel soil association. These soils were formed in glacial outwash from mixed parent materials and are moderately deep and well-drained. The erosion condition class is low to moderate (3 to 5 tons/acre/year).

Water Resources

The entire WSA drains into Snowmass Creek which is a tributary to the Roaring Fork River. No perennial streams exist within the WSA. The overall drainage pattern is radial with steep gradients.

No water quality information is available for the WSA. The WSA contains 262 acres of high water yielding vegetation types including 70 acres of mixed conifer forest, 46 acres of aspen forest, and 146 acres of mountain brush. Total water yield from the WSA is estimated to range from 137 to 275 acre-feet/year.

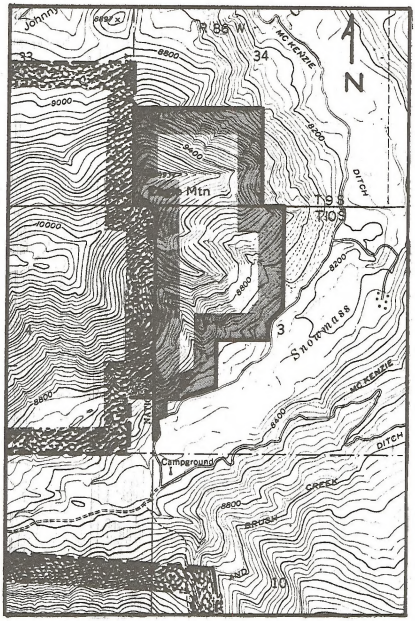
Minerals

The only locatable mineral known potentially to exist in the WSA is gold. Fifteen unpatented lode claims and two unpatented mill site claims exist within the WSA. Five of the lode claims and one mill site claim date from 1939. No salable minerals are present within the WSA. Oil and gas is undiscovered and there are no known geologic structures, but because thick sediments exist, the WSA has been identified as being potentially valuable. No mineral leases are within the WSA. No strategic or critical materials listed in the Stockpile Report to Congress are known to exist within the WSA.

Aquatic Wildlife

No aquatic habitat exists within the WSA.

FIGURE 2
EAGLE MOUNTAIN WILDERNESS STUDY AREA



LEGEND

Wilderness Study Area Boundary

Maroon Bells-Snowmass Wilderness Boundary

SCALE

1 Mile

Terrestrial Wildlife

Deer, elk, mountain lion, and bear, as well as many small game and nongame species, exist in the area, but do not use the area extensively. The WSA is generally considered to be summer range for most species.

Livestock Grazing

One grazing allotment exists within the WSA. The active use (5-year average) for this allotment is 17 animal-unit months (AUMs) with the season of use between June 21 and June 30.

Vegetation

Vegetation within the WSA consists of the Engelmann spruce-subalpine fir forest type, aspen, and the mountain shrub vegetative types. The spruce-fir vegetation is concentrated on the north slope of Eagle Mountain, with isolated pockets in some of the drainages; aspen is mainly on the north and east slopes of Eagle Mountain, with the mountain shrub type in the remainder of the WSA.

Forestry

Productive forest land occurs in 2 stands totaling 190 acres. Of this timber, 50 percent is Engelmann spruce-subalpine fir and 50 percent is aspen with a total volume of 1,094 thousand board feet. All of the timber occurs on slopes over 40 percent.

Recreation Resources

No accurate recreation use data is available, however, recreation use is estimated to be very minimal. The only activity for which a use estimate has been made is big game hunting; use is estimated to be 10 visits annually.

The Recreation Opportunity Spectrum (ROS) inventory identified two ROS setting opportunities within the WSA. The semi-urban (also called rural) setting occurs in a quarter mile corridor, encompassing approximately 86 acres, immediately adjacent to the road along Snowmass Creek. The remaining 244 acres of the WSA was identified as roaded natural. ROS classes are defined in Appendix E of the DEIS.

Cultural Resources

No cultural sites have been identified within the WSA.

Paleontological Resources

No paleontological resources have been identified within the WSA.

Wilderness Values

Mandatory Wilderness Characteristics

Size. The WSA contains 330 acres of public land administered by the BLM. No private or state lands are within the boundaries of the WSA. Even though the WSA is less than 5,000 acres in size, it meets the size criteria in the Wilderness Inventory Handbook since it is contiguous to the Maroon Bells-Snowmass Wilderness administered by the U.S. Forest Service.

Naturalness. The only imprint of man which exists within the unit is a small corral made from dead aspen rails. The corral is located in a dense aspen stand which provides sufficient screening to eliminate any effect the imprint could have on the natural qualities. Because of its insignificant effect, rehabilitation of the corral is not necessary.

Previous to a discussion of the influences of outside sights and sounds and their influence on the naturalness of the unit, a reference should be made to the context in which they will be evaluated. Interpretation of the congressional report on the 1978 Endangered American Wilderness Act indicates that outside sights and sounds can have positive influences on wilderness values or can outweigh the benefits of wilderness designation.

Panoramic views are available of the adjacent wilderness and forest service lands outside the unit to the south and west. To the north and east, there are views of pastoral landscapes and the Snowmass Ski Area. Although areas of vegetative manipulation and other activities of man outside the unit are visible, they have a very insignificant effect on the qualities of naturalness of the WSA. Since the area is a gateway to the expansive Maroon Bells-Snowmass Wilderness, little attention is attracted to the outside sights and sounds. The natural state of the WSA is enhanced by outside sights and sounds of man's activities since the feeling of leaving an area of human influence is prevalent as a visitor enters the WSA and the existing wilderness.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation. Due to its topography and small size (330 acres), the WSA does not possess outstanding oppportunities for solitude by itself. Opportunities for sightseeing, photography, hiking, and hunting are available, but are not considered outstanding. However, the WSA is an extension of the Maroon Bells-Snowmass Wilderness with no physical barriers separating them, and thus, shares the very high quality opportunities for both of these values which are present in the existing wilderness. Outside sights and sounds of man's activities have no influence on the ability to find a secluded spot since they have limited visibility from the existing wilderness.

Access to the WSA is available from the White River National Forest and from the county road which forms portions of the southern boundary of the unit. This access ensures the WSA can be used by the public and could expand recreational opportunities and aid in dispersion of visitors within the existing wilderness.

Special Features

The WSA has been rated as high quality scenery (Class A) in the visual resource management (VRM) analysis. No other supplemental values, other than being contiguous to an existing wilderness, have been identified.

Diversity in the National Wilderness Preservation System

The WSA is characterized by the vegetative type defined by Kuchler (1964) as the western spruce-fir forest and is in the ecoregion defined by Bailey (1978) as the Ponderosa pine/Douglas fir forest section of the Rocky Mountain Forest Province.

Standard Metropolitan Statistical Areas (SMSAs) within a day's driving time (5 hours) of the Glenwood Springs Resource Area are shown in Table 1. Existing wildernesses and other wilderness study areas within a day's driving time of the SMSAs are listed in Appendix 2.

TABLE 1
STANDARD METROPOLITAN STATISTICAL AREAS WITHIN
FIVE HOURS DRIVE OF THE GLENWOOD SPRINGS RESOURCE AREA

Area	County	Population1/	Distance
Denver/Boulder	Adams Arapahoe Boulder Denver Douglas Gilpin Jefferson	1,619,921	3-1/2 hours
Colorado Springs	El Paso Teller	317,458	4-1/2 to 5 hours
Fort Collins	Larimer	149,184	4-1/2 to 5 hours
Greeley	Weld	123,438	4-1/2 to 5 hours
Pueblo	Pueblo	125,972	5 hours
Total Population		2,335,973	

Note: A Standard Metropolitan Statistical Area is defined as a county with at least one city of 50,000 inhabitants or more plus as many adjacent counties metropolitan in character which are socially integrated with that central city or cities.

1/Colorado Division of Planning, 1980 census figures

Visual Resources

The tentative visual resource management (VRM) class for the WSA is Class II. This classification allows for changes in the characteristic landscape, however, such changes should not be evident.

The WSA was identified as high quality (Class A) scenery in the VRM inventory. Overall sensitivity to visual changes is high and the WSA is in the foreground distance zone from the road and subdivisions along Snowmass Creek and the Snowmass Ski Area.

Land Tenure

The entire WSA is public land administered by the BLM, including all minerals. However, the entire area has been proposed for disposal, but not by public sale (C 12674, Order of Proposed Disposal Classification, July 22, 1971). The WSA has been identified in a public proposal for disposal into private ownership.

Transportation

The only right-of-way which would affect the WSA is for the road which forms a portion of the southern boundary.

Legal access to the WSA is provided along the White River National Forest boundary which is the western boundary of the unit and from the county road which forms portions of the southeastern and southern boundaries of the WSA. No additional legal access would have to be acquired.

Utility and Communication Facilities

No utility or communication facilities exist within the WSA and there are no known proposals.

Air Quality

The entire WSA has been given a Class II air quality classification which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. Air quality is within the applicable Class II State and National Ambient Air Quality Standards.

Social and Economic Conditions

The WSA has minimal economic activity. Grazing of 17 AUMs contributes an estimated $1,600 toward local personal income. An estimated 10 big game hunting visits contribute approximately $350 annually in local income. The WSA has no current or known potential mineral production. Most of the WSA's supply of approximately 1.1 million board feet (MMBF) of timber is non-commercial species on slopes over 40 percent and no timber production is presently occurring.

A division exists among residents of the resource area on the concept of wilderness. An apparent majority is opposed to additional wilderness designation. Support for additional wilderness designation tends to come from younger residents, more recent arrivals to the area, and residents in the resort areas.

A study of wilderness in Colorado (Walsh 1981) estimated that 54 percent of Colorado residents would prefer to have more wilderness designated than existed in 1980 (about 1.2 million acres), and 46 percent would prefer twice as much wilderness (5 million acres) than existed after passage of the Colorado Wilderness Bill. This study also shows that many of the reasons for valuing wilderness are for indirect uses or appreciation of the intrinsic values of wilderness.

During the intensive wilderness inventory, all of the comments that were received supported identification of the area as a WSA (see Public Comments section for more information).

Environmental Consequences

Continuation of Current Management Alternative

No Wilderness Option Impacts

Soils. The most significant impact to soils could occur as a result of potential surface disturbing activities such as mining operations. Mining operations would be regulated to prevent unnecessary and undue degradation of resources, however, increased soil erosion could occur, at least during the period of operation. The impacts of future mining operations cannot be quantified until the extent of mining is known.

Water Quality. Increased surface water sediment load could occur as a result of potential future surface disturbances. Water quality could also be decreased as a result of acid mine drainage and associated heavy metal contamination.

Minerals. Based on the lack of development of existing mining claims, some of which date to 1939, and assuming the absence of mineral leases indicates a lack of interest, a low probability exists that extensive mineral development would occur. However, under this option, exploration and development of mineral resources would be allowed subject to the surface management regulations that are designed to prevent unnecessary and undue degradation of the environment and require resonable reclammation of disturbance resulting from mining activities. There would be no deadline for proving the economic feasibility of a mining operation. Mining claims which meet the "prudent man test" could be patented and transferred into private ownership.

Any mineral leases issued prior to Congress' decision would contain stipulations to ensure that development of the leases does not impair the area's wilderness characteristics. Following Congress' nondesignation decision, the wilderness stipulations would no longer apply and any leases would be subject only to stipulations to prevent unnecessary and undue degradation.

Aquatic Wildlife. Increased siltation and acidity resulting from future surface disturbances could cause an unquantifiable deterioration of aquatic habitat and associated aquatic wildlife. This impact would occur entirely outside of the WSA.

Terrestrial Wildlife. All wildlife species could be adversely affected by potential future mining operations as a result of habitat disruption and visual and noise disturbances. These impacts would be dependent on the extent of future activities but are expected to be insignificant based on the small amount of range affected and the small numbers of wildlife which use the area.

Livestock Grazing. Under this alternative, the allotment would be less intensively managed with no specific improvements proposed. Existing AUMs and season of use would remain in effect.

Vegetation. Potential surface disturbing activities such as mining operations could destroy vegetation in the areas of operation. Reclamation might not completely mitigate losses of vegetation, with a net loss of vegetation or a change of vegetative types.

Forestry. Under this alternative, forested lands on slopes over 40 percent would not be managed. Therefore, none of the timber would be available for commercial harvesting.

Recreation Resources. Recreational use would be expected to remain the same. Hunting could be adversely affected by potential surface disturbing activities such as mining operations, especially if operations would occur during hunting season and reduce the number of animals present in the area. However, this impact is insignificant based on the minor amount of use. Existing Recreation Opportunity Spectrum (ROS) classes would not be affected.

Wilderness Values. Non-designation of the WSA would have short and long-term adverse impacts on wilderness values. Mineral exploration and other surface disturbing activities would be allowed to occur and could impair the naturalness of the area. The wilderness values and other uses and values associated with wilderness could be lost forever. The WSA would not be considered for addition to the existing Maroon Bells-Snowmass Wilderness. Because of its small size, non-designation would have virtually no effect on providing diversity in the National Wilderness Preservation System.

Visual Resources. Under this option, the entire WSA would remain in VRM Class II. The management objective for Class II is that changes caused by a management activity should not be evident in the characteristic landscape which would provide protection of the area's scenic quality. Management actions would be constrained by this objective, however, some deterioration could occur due to future mineral exploration and development rights.

Land Tenure. In this alternative, all proposals for disposal would be handled on a case-by-case basis and the WSA could be considered for transfer into private ownership.

Transportation. The existing right-of-way for the county road would not be affected.

Utility and Communication Facilities. Any future proposals for utility and transportation facilities would be handled on a case-by-case basis; however, there are no known proposals.

Economic Impacts. No economic impacts would occur.

Consistency With Other Plans. Non-designation of the WSA is inconsistent with the plans and policies of Pitkin County and the U.S. Forest Service, White River National Forest, both of which support wilderness designation of this WSA.

All Wilderness Option Impacts

Soils. Soil conditions would remain essentially unchanged. Prohibition of surface-disturbing activities would benefit the soil resource by precluding soil disturbances which might otherwise occur.

Water Quality. Water quality would remain essentially unchanged, but would be benefited since deterioration would not occur as a result of surface-disturbing activities.

Minerals. Wilderness designation would withdraw 330 acres from appropriation under the mining laws and from leasing under the mineral leasing laws, subject to valid existing rights as of the date of designation since designation would not be expected to occur until after the December 31, 1983 withdrawal date established for existing wildernesses in the Wilderness Act (Section 4 (d) 3). Unless valid rights are established using the "prudent man test" for the mining claims prior to the date of designation, the mineral potential of the entire WSA would be foregone.

Mineral leasing could occur until the date of designation. However, any leases would contain stipulations to ensure that development of the leases would not impair the area's wilderness characteristics.

Aquatic Wildlife. Wilderness designation could protect aquatic habitat and aquatic species outside of the WSA from deterioration caused by siltation or acidity associated with potential surface disturbances within the WSA.

Terrestrial Wildlife. Wilderness designation would prevent habitat disruption associated with potential surface-disturbing activities.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option.

Vegetation. Prohibition of surface-disturbing activities would benefit vegetation by preventing removal or alteration. Natural ecological processes would continue to occur.

Forestry. Impacts would be the same as in the No Wilderness Option.

Recreation Resources. Only primitive types of recreation would occur within the area. Hunting, the main recreational use of the WSA, would not be affected. Visitation would be expected to remain about the same.

Upon designation, the WSA would be closed to off-road vehicle (ORV) use. However, no ORV use is known to occur presently because of the unsuitable topography.

Existing ROS classes would not be affected.

Wilderness Values. Wilderness designation would have short and long term benefits to wilderness values by providing additional protection. The naturalness of the area would be preserved and natural ecological changes would continue to occur. Preservation of wilderness values would in turn protect the WSA's scenic qualities identified as a supplemental value. A major value of wilderness is its scientific importance as it relates to all resources. Opportunities would exist to use the WSA, as part of the Maroon Bells-Snowmass Wilderness, as a benchmark to study changes induced by man and to study unmodified natural processes.

Designation of the WSA as wilderness would have virtually no effect on providing diversity in the National Wilderness Preservation System. However, the small size (330 acres) of the WSA in relation to the contiguous Maroon Bells-Snowmass Wilderness (174,329 acres) and the fact the WSA would be an addition to an existing wilderness limits the relevancy of a discussion of providing a diversity of wilderness opportunities.

Because of its small size (330 acres), the WSA would only be manageable for wilderness as an addition to the Maroon Bells-Snowmass Wilderness administered by the U.S. Forest Service. To provide for efficient and consistent management with the existing wilderness, administration of the WSA could be transferred to the U.S. Forest Service through a boundary adjustment or cooperative agreement upon designation. An Act of Congress would be required for a boundary adjustment.

Visual Resources. Under this option, the VRM class would be changed from Class II to Class I. The management objective for Class I provides primarily for natural ecological changes which would provide additional protection of the WSA's high scenic quality. The WSA provides an important scenic backdrop for the Snowmass Creek drainage, and especially for the Snowmass Ski Area located directly east of the WSA. Protection of the WSA's visual qualities would provide for continued enhancement of views from the subdivisions along Snowmass Creek and the ski area.

Land Tenure. Under this option, the Order of Proposed Disposal Classification (C 12674, June 22, 1971) would be revoked. The WSA would not be suitable for disposal into private ownership and would remain in federal ownership. Administration could be transferred to the U. S. Forest Service.

Transportation. The right-of-way for the road that forms a portion of the WSA's southern boundary would not be affected by wilderness designation. Any future proposals for rights-of-way within the WSA would be rejected.

Utility and Communication Facilities. Any future proposals for utility or communication facilities would be rejected.

Economic Impacts. No economic impacts would occur.

Consistency with Other Plans. Designation of the WSA as wilderness is consistent with the plans and policies of Pitkin County and the U. S. Forest Service, White River National Forest, both of which support wilderness designation.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. Essentially, no resource conflicts exist and wilderness designation would provide various benefits to wilderness values and other resources by preserving a natural ecosystem. This preservation would minimize disturbances to soils, surface and sub-surface waters, hydrologic processes, plant communities, and wildlife populations. Wilderness designation would also protect scenic quality by maintaining natural landscapes. The WSA is a logical extension of the Maroon Bells-Snowmass Wilderness and would be manageable as wilderness over the long-term. The suitability recommendation is consistent with the plans and policies of both Pitkin County and the White River National Forest. It is also recommended that administration of the WSA be transferred to the U. S. Forest Service through a boundary adjustment or cooperative agreement upon designation as wilderness.

Resource Protection Alternative

Management of, and impacts on, all resources would be the same as those described in the Continuation of Current Management Alternative except for land tenure and utility and communication facilities that are described below.

No Wilderness Option Impacts

Land Tenure. In this alternative, a zoning classification for land tenure would be implemented with the WSA zoned for cooperative management. The objectives of this classification would be to retain public land where cooperative management by more than one agency is required and to coordinate management activities. Disposal could occur where all parties involved would benefit. The WSA would not be suitable for disposal into private ownership, but could be cooperatively managed with, or transferred to, the U. S. Forest Service. Nondesignation would not affect the classification, nor would the classification affect wilderness values.

Utility and Communication Facilities. A zoning classification for utilities would also be implemented. Following a non-designation decision by Congress, the WSA would be zoned as suitable for consideration for such facilities; however, there are no known proposals.

All Wilderness Option Impacts

Land Tenure. The impacts on land tenure would be the same as in the No Wilderness Option.

Utility and Communication Facilities. Upon wilderness designation, the WSA would be zoned as unsuitable for such facilities and any future proposals would be rejected.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. The rationale is the same as in the Continuation of Current Management Alternative.

Economic Development Alternative

Management of, and impacts on, all resources would be the same as those described in the Continuation of Current Management Alternative except for water quality, water yield, forestry, wilderness values, land tenure, and utility and communication facilities that are described below.

No Wilderness Option Impacts

Water Quality. The vegetative conversions to increase water yield would cause a short-term decrease in water quality in Snowmasss Creek and the Roaring Fork River due to increased siltation. However, this impact would be insignificant.

Water Yield. In this alternative, vegetation would be converted to increase water yield. Potentially, 40 percent of the conifer vegetation and 50 percent of the aspen could be clearcut in patches 5 to 8 tree heights in diameter and 50 percent of the mountain shrub vegetation could be converted to grass or clearcut. The potential increase in water yield from these conversions would be 116 to 201 acre-feet per year (average of 151 acre-feet per year). The overall benefit of the increased water yield on the Roaring Fork River drainage would be low.

Forestry. In this alternative, forested land on slopes over 40 percent would be considered for management and harvesting. However, due to the WSA's small size and isolation from other potential timber sale areas, it is doubtful that timber harvesting would occur.

Wilderness Values. Impacts would be the same as described in the No Wilderness Option in the Continuation of Current Management Alternative except there would be an increased loss of naturalness throughout the WSA due to the vegetation conversions to increase water yield.

Land Tenure. In this alternative, the land tenure classification would be retention or cooperative management. Impacts would be the same as in the Resource Protection Alternative.

Utility and Communication Facilities. Impacts would be the same as in the Resource Protection Alternative.

All Wilderness Option Impacts

Water Quality. Water quality would not be decreased in either the short or long-term.

Water Yield. Vegetative conversions to increase water yield would not occur and water yield from the WSA would not be increased.

Forestry. Forested land within the WSA would not be considered for management or harvesting. Impacts would be the same as in the All Wilderness Option in the Continuation of Current Management Alternative.

Wilderness Values. Impacts would be the same as in the All Wilderness Option in the Continuation of Current Management Alternative.

Land Tenure. Impacts would be the same as in the Resource Protection Alternative.

Utility and Communication Facilities. Impacts would be the same as in the Resource Protection Alternative.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. The only resource conflict is with the vegetation conversions to increase water yield. However, the increase in water yield would be insignificant on a regional basis. Wilderness designation would provide various benefits to wilderness values and other resources by preserving a natural ecosystem. This preservation would minimize disturbances to soils, surface and sub-surface waters, hydrologic processes, plant communities, and wildlife populations. Wilderness designation would also protect scenic quality by maintaining natural landscapes. The WSA is a logical extension of the Maroon Bells-Snowmass Wilderness and would be manageable as wilderness over the long-term. The suitability recommendation is consistent with the plans and policies of Pitkin County and the White River National Forest. It is also recommended that administration of the WSA be transferred to the U. S. Forest Service through a boundary adjustment or cooperative agreement upon designation as wilderness.

Preferred Alternative

Management of, and impacts on, all resources would be the same as in the Resource Protection Alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. The rationale is the same as in the Continuation of Current Management Alternative.

Comparative Analysis of Alternatives

Since the entire WSA would be recommended as suitable for wilderness designation in all alternatives, a comparative analysis will not be made.

Public Comments

Ten public comments were received during the intensive inventory of the WSA, all of which supported WSA identification. Specific items addressed in the comments were the area is natural; contains a virgin forest, has rugged terrain; has ample opportunities for solitude; provides excellent hiking, wildlife observation, climbing, and photography opportunities; designation would preserve wildlife habitat; and designation would complement, and help relieve recreation pressure in, the adjacent Maroon Bells-Snowmass Wilderness. One comment also asked how the area would be administered if designated.

Public workshops were held in May, 1982 to obtain comments on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. Seven comments concerning wilderness were received. Five comments supported the Resource Protection Alternative, one comment supported the Continuation of Current Management Alternative, and one comment supported the Economic Development Alternative. Some general comments stated that all WSAs should be designated and others that no more wilderness should be designated. The comment from Pitkin County supported designation of the Eagle Mountain WSA and stated the WSA's proximity to the Maroon Bells-Snowmass Wilderness and its prominence from the Snowmass area make it an ideal addition to that wilderness.

Affected Environment

Setting

This WSA (3,360 acres) is located approximately 20 miles northeast of Glenwood Springs (See Figure 1) and is contiguous to the Flat Tops Wilderness. The topography is a mixture of rolling hills, cliffs, and steep, mountainous terrain. Elevations range from 7,600 feet in the southwest corner of the WSA to 11,034 feet at the rim of the Flat Tops on the northern boundary. Figure 3 is a map of the WSA.

Soils

The northern half of the WSA consists of the Jerry-Cochetopa-Lieg soil association and the southern half consists of the Leavitteville-Cheadle-Starman soil association. Both soil associations are well drained, but the northern soils are very deep while the southern soils are shallow to deep. The erosion condition class for the entire WSA is low to high.

Water Resources

The entire WSA drains into Sweetwater Creek which is a tributary of the Colorado River. Three perennial streams (Hack Creek, West Fork of Sheep Creek, and Horse Creek) pass through the WSA. Seven known springs, several small ponds, Hack Lake (approximately 3 acres), and Horse Lake (approximately 2 acres) are within the WSA.

Water quality information is not available for the WSA. The WSA contains 3,140 acres of high water yielding vegetation types including 1,810 acres of mixed conifer forest, 1,170 acres of aspen forest, and 160 acres of mountain brush. Total water yield from the WSA is estimated to range from 1,400 to 2,800 acre-feet/year.

Minerals

No mining claims are located within the WSA. The only locatable mineral known to potentially exist in the WSA is gypsum; however, gypsum has been identified as subeconomic and also undiscovered. No saleable minerals are known to exist within the WSA. Potential leaseable minerals include oil and gas and sodium. Oil and gas is undiscovered and there are no known geologic structures, but because thick sediments exist, the WSA has been identified as being prospectively valuable. Sodium is also undiscovered. No mineral leases are within the WSA; however, approximately 291 acres in the eastern portion of the WSA are under an oil and gas lease application (see Figure 4). No strategic or critical materials listed in the Stockpile Report to Congress are known to exist within the WSA.

Aquatic Wildlife

Good trout fisheries exist in Hack Lake and Horse Lake. Hack Lake also provides habitat for Colorado River cutthroat trout, a state listed threatened species, however, no natural

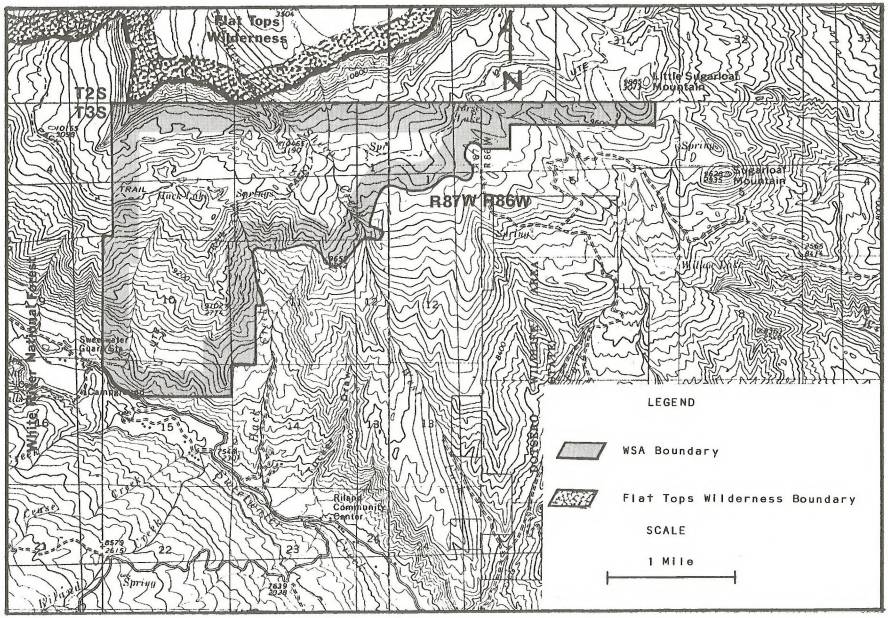


FIGURE 3
HACK LAKE WILDERNESS STUDY AREA

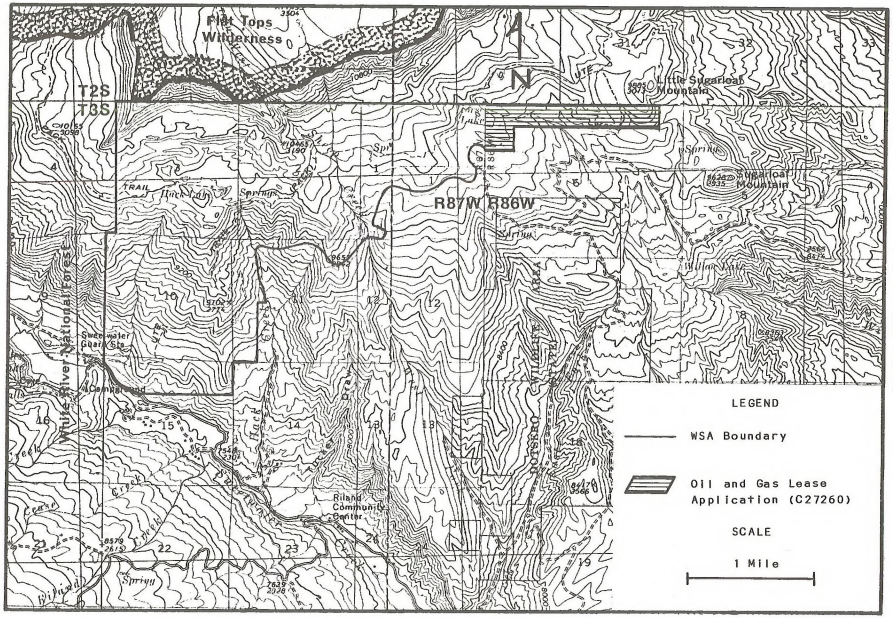


FIGURE 4
HACK LAKE WILDERNESS STUDY AREA
OIL AND GAS LEASES

reproduction is occurring. Sheep Creek also is a trout fishery, but has been rated as below average.

Terrestrial Wildlife

Deer, elk, mountain lion, and bear, as well as many small game and non-game species exist in the area. The higher elevations provide summer range for deer and elk and the lower elevations provide winter range for both species. Bird species present in the WSA include blue grouse and raptors.

Livestock Grazing

Portions of 4 grazing allotments exist within the WSA. The total active use (5-year average) for these allotments is 263 AUM's with seasons of use between May 16 and September 30. Existing range improvements consist of 3 fences and a small corral.

Vegetation

The dominant vegetation type in the northern half of the WSA is the Englemann spruce-subalpine fir forest type. This area contains considerable dead standing trees killed by a spruce beetle infestation in the 1930's. Stands of aspen and pinyon-juniper woodland occur in the northwestern and southwestern corners of the WSA. The semi-desert shrub type, mountain shrub type, and grassy meadows also occur within the WSA.

Forestry

Approximately 1,810 acres of the Englemann spruce-subalpine fir forest type with a volume of 9.3 million board feet (MMBF), located mainly in the northern third of the WSA, are considered productive forest lands. Included within this forest type are the standing dead trees killed by the spruce beetle infestation. The WSA also contains approximately 1,170 acres and 6.8 MMBF of aspen. However, aspen is not considered to be a commercial forest species at this time.

Recreation

No complete recreation use data for the WSA is available, however, 1979 visitor use estimates indicate approximately 60 fishing visits, 45 camping/hiking visits, 25 big game hunting visits, and 5 small game hunting visits occur annually. Motorcycle use is known to occur on the Ute Trail, mainly for access to Hack Lake for fishing; total use is not known, but is estimated to be low.

The recreation inventory identified several recreation features and attractions within the WSA including high quality scenery and panoramic views of the Sweetwater and Colorado River Valleys, the Sawatch Mountains, and the Castle Peak/Bull Gulch area; wildlife hunting and viewing opportunities; good fishing opportunities in Hack and Horse Lakes; the cultural values of the Ute Trail; and educational and scientific values of the exposed lava flow and the transition of environments from dry sage/oakbrush to moist swampy areas and spruce/fir.

The Recreation Opportunity Spectrum (ROS) inventory identified three ROS setting opportunities within the WSA. The majority of the WSA (2,301 acres) has been identified as semi-primitive nonmotorized. This setting is scarce on public lands in the resource area and information on visitor's preferences for settings associated with various activities indicate a high

preference for this setting. Approximately 863 acres in the southern and eastern portions of the WSA are within the semi-primitive motorized setting. The roaded natural setting occurs in the extreme southern portion of the WSA and includes approximately 196 acres.

Cultural Resources

Portions of the Ute Trail occur within the WSA. This trail was a major migration route of the Ute Indians for travel between extreme western Colorado and the Flat Tops and Colorado River Valley areas. An old cabin located near Hack Lake is of unknown origin but may have some historical value.

Paleontological Resources

No paleontological resources have been identified within the WSA.

Wilderness Values

Mandatory Wilderness Characteristics

Size. The WSA contains 3,360 acres of public land administered by the BLM. Although the WSA is less than 5,000 acres in size, it meets the size criteria in the Wilderness Inventory Handbook as it is contiguous at two points to the Flat Tops Wilderness administered by the U.S. Forest Service. No private or state lands are located within the boundaries of the WSA.

Naturalness. Imprints of man within the WSA include 3 fences, 2 cabins, a network of pack trails, and a small corral. Two of the fences run across the northeast section of the WSA. Both are four-strand barbed wire approximately 1 mile in length. The majority of both fences pass through dense timber stands where screening reduces the visibility and the impacts on naturalness. The small sections of the lines which are located in meadows have a slightly greater visual impact. The third fence is located in the south central section of the WSA and is approximately 1 mile in length with a short spur to the east. Vegetative screening and the topographic relief reduce the impacts of this fence on the quality of naturalness. The limited amount of fencing within the WSA and the vegetative and topographic screening result in a very low impact on naturalness.

Two small log cabins exist within the WSA. The cabin at Hack Lake has been maintained by hunters and hikers and remains in a useable condition. As the cabin is located in a clearing near the lake, no screening is available from the immediate area. The second cabin is also located in a clearing but the visual impact is reduced by the weathered condition of the cabin. As a result of their small size and their physical appearance, these cabins have only a slight impact on naturalness.

The pack trails form a north-south and east-west transportation network in the WSA. The trails were designed for foot and horse traffic and are screened by both vegetation and topography. Trails are not considered to significantly impact the quality of naturalness.

The corral is located on the WSA's eastern boundary in a small clearing. The corral is visible from the immediate area but screened from view from the remainder of the WSA. The corral has little effect on naturalness within the WSA.

Previous to a discussion of the influences of outside sights and sounds and their influence on the naturalness of the unit, a reference should be made to the context in which they will be evaluated. Interpretation of the congressional report on the 1978 Endangered American Wilderness Act indicates that outside sights and sounds can have positive influences on wilderness values or can outweigh the benefits of wilderness designation.

Sights and sounds of activities of man outside the WSA are limited to recreational and agricultural influences in the Sweetwater Creek drainage. Because of distance from the activities and their limited and rural nature, these influences do not degrade or enhance the quality of naturalness.

The imprints of man which exist have not effected the natural landforms or ecosystems within the WSA. The primeval character which has been retained provides a very high natural quality within the WSA.

The minor influences of the imprints for man on naturalness do not warrant undertaking rehabilitation actions or separation from the WSA. Some fence removal or relocation could further enhance the quality of naturalness but is not required to provide the impression of primeval character within the WSA. Furthermore, fences are allowable in wildernesses (see Wilderness Inventory Handbook and Wilderness Management Policy). Removal of the cabins is not necessary since cabins are a non-traditional use currently existing in the Flat Tops Wilderness.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation. Due to the rolling to steep topography of the WSA, numerous clifftops, and stream drainages, outstanding opportunities for solitude do exist. Vegetative screening is an important factor adding to the feeling of solitude. Dense spruce-fir and aspen vegetation cover most of the unit, making it difficult to distinguish other individuals or sounds. Atop the ridges and cliffs, as well as from many points along the Ute Trail, perceptions of spaciousness are offered from the panoramic views and also contribute to feelings of solitude. The opportunities for solitude offered in this WSA are enhanced by those available in the adjoining Flat Tops Wilderness.

The distance from, and the rural nature of, activities of man outside of the WSA have a negligible effect on opportunities for solitude. An opportunity exists within the WSA to view, or be secluded from, outside sights and sounds depending on the preference of the visitor.

The opportunity to find a secluded spot exists not only within the WSA but throughout the adjoining 235,230 acres of the U.S. Forest Service administered Flat Tops Wilderness. These numerous opportunities are considered to provide the WSA with extremely high quality opportunities for solitude.

Outstanding opportunities for primitive and unconfined recreation are present in the WSA. The varied topography, diverse vegetation and wildlife, abundance of water, and several access trails and ways all contribute to opportunities for hiking, backpacking, horseback riding, hunting, fishing, photography, and sightseeing. The W Mountain Trail provides access through the unit into the Flat Tops Wilderness. The outstanding opportunities for primitive and unconfined recreation available in the WSA are further enhanced by those opportunities present in the adjoining Flat Tops Wilderness.

The physical features of the WSA and adjoining Flat Tops Wilderness provide for a large diversity of opportunities for primitive and unconfined types of recreation. These diverse opportunities result in an extremely high quality value for primitive and unconfined types of recreation.

Access to the WSA is available from the national forest on the west and north and from the county road along Sweetwater Creek to the south. This access ensures the area can be used by the public.

Special Features

The WSA possesses educational and scenic values due to the exposed lava flow along the Ute Trail and opportunities for wildlife observation. Hack Lake contains Colorado River cutthroat trout, a state listed threatened species. The majority of the WSA was rated as high quality (Class A) scenery in the Visual Resource Management analysis. Ecological significance is demonstrated in the transition from the dry sage/oakbrush environment to moist swamp areas and aspen/fir. The historical Ute Trail passes through the WSA. This trail was a major route used by the Ute Indians. The log cabin and corral by Hack Lake may also be of some historical interest. The W Mountain Trail provides a viable route through the WSA into the existing Flat Tops Wilderness to the north. The supplemental values serve to further enhance the opportunities for primitive and unconfined recreation activities.

Diversity in the National Wilderness Preservation System

The WSA is characterized by the vegetative type defined by Kuchler (1964) as the western spruce-fir forest. This is the same vegetative type as the Flat Tops Wilderness to which the WSA is contiguous, and is prevalent in existing wildernesses in the Glenwood Springs Resource Area, Colorado, and the northern and middle Rocky Mountain physiographic regions.

Standard Metropolitan Statistical Areas (SMSAs) within a day's driving time (5 hours) of the Glenwood Springs Resource Area are shown in Table 1. Existing wildernesses and other wilderness study areas within a day's driving time of the SMSAs are listed in Appendix 2.

Visual Resources

The tentative Visual Resource Management (VRM) class for the WSA is Class II. This classification allows for changes in the characteristic landscape, however, such changes should not be evident.

Except for a small area immediately adjacent to Sweetwater Creek identified as medium quality (Class B) scenery, the WSA was identified as high quality (Class A) scenery in the VRM inventory. Sensitivity to visual changes is moderate or high. Most of the southern half of the WSA is in the foreground distance zone, most of the remainder of the WSA is in the seldom seen zone, and the very northwestern corner is in the background zone.

Land Tenure

The entire WSA is public land administered by the BLM, including all minerals. Two stock driveway withdrawals exist in the WSA (see Figure 5), but the areas have not been used for this purpose in recent years.

Transportation

The U.S. Forest Service has a right-of-way for the Ute and W Mountain Trails that are used for access to the national forest.

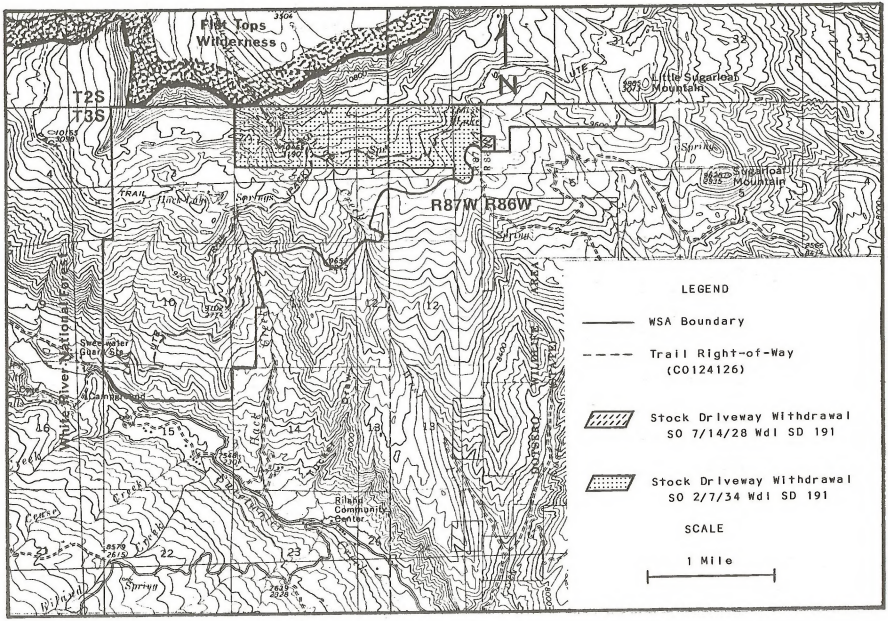


FIGURE 5

HACK LAKE WILDERNESS STUDY AREA
WITHDRAWALS AND RIGHTS-OF-WAY

Legal access to the WSA currently exists from the White River National Forest on the north and west boundaries, and from the Sweetwater Creek Road on the south boundary.

Utility and Communication Facilities

A ten-foot right-of-way for a telephone line exists along the southwestern boundary of the WSA along the Sweetwater Creek Road.

Air Quality

The entire WSA has been given a Class II air quality classification which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. Air quality is within the applicable Class II State and National Ambient Air Quality Standards.

Social and Economic Conditions

Limited economic activity occurs in the WSA. The 4 grazing allotments that are partially within the WSA have had an average yearly use of 263 AUMs, contributing a total of approximately $12,000 annually to local personal income. Recreation use in the area generates approximately $2,500 toward local income per year. While there is no current timber production, 9.3 MMBF of commercial timber is present in the WSA. No mineral production is occurring and no economic potential has been identified.

A division exists among residents of the resource area on the concept of wilderness. An apparent majority is opposed to additional wilderness designation. Support for additional wilderness designation tends to come from younger residents, more recent arrivals to the area, and residents in the resort areas.

A study of wilderness in Colorado (Walsh 1981) estimated that 54 percent of Colorado residents would prefer to have more wilderness designated than existed in 1980 (about 1.2 million acres), and 46 percent would prefer twice as much wilderness (5 million acres) than existed after passage of the Colorado Wilderness Bill. This study also shows that many of the reasons for valuing wilderness are for indirect uses or appreciation of the intrinsic values of wilderness.

During the intensive wilderness inventory, ten comments were received, six favoring WSA identification and four opposing WSA identification (see Public Comments section for more information).

Environmental Consequences

Continuation of Current Management Alternative

No Wilderness Option Impacts

Soils. The most significant impact to soils would occur as a result of timber harvesting. Based on the total acreage of productive forest lands within the WSA, timber harvesting could increase erosion by 6,150 tons/year. Vegetation manipulations to increase livestock forage

would increase erosion by an additional 64 tons/year. These increases would decline rapidly following completion of the projects and would not be noticeable after approximately 5 years.

Water Quality. Increased surface water sediment load could occur as a result of erosion from timber harvesting and vegetation manipulations. The impact would vary depending on the locations of sales and manipulated areas; thus, the impacts to particular streams within the WSA cannot be quantified until these locations are known. The overall effect on Sweetwater Creek would be a moderate increase in sediment, but the increase would be within standards established by the Northwest Colorado Council of Governments Draft 208 Plan.

Minerals. Based on the absence of existing mining claims and the identified subeconomic nature of gypsum, the only known locatable mineral, it would be doubtful that future location or development would occur. However, the WSA would remain open to mineral location.

Any future mineral leases, including the portion of the WSA currently under an oil and gas lease application (see Figure 4), issued prior to Congress' decision would contain stipulations to ensure development of the leases does not impair the WSA's wilderness characteristics. Following a non-designation decision by Congress, the wilderness stipulations would no longer apply and any leases would be subject only to stipulations to prevent unnecessary and undue degradation of the environment. Because of the lack of mineral leasing and assuming undiscovered minerals are subeconomic, it may be doubtful that mineral exploration and development would occur.

Aquatic Wildlife. Decreases in water quality caused by increased siltation from timber harvesting and vegetation manipulations could adversely affect aquatic habitat and aquatic wildlife in Hack Lake and Sheep Creek within the WSA and Sweetwater Creek outside of the WSA, but the impacts cannot be quantified until the locations are known. Because of its location, aquatic habitat and wildlife in Horse Lake would not be affected by timber harvesting.

In this alternative, the habitat and populations of Colorado River cutthroat trout in Hack Lake could be adversely affected since no specific protective actions would be implemented.

Terrestrial Wildlife. All wildlife species could be adversely affected in the short-term by timber harvesting as a result of habitat disruption and stress caused by human activity and noise. These impacts would be dependent upon the location, extent, and time of year that harvesting would occur; however, the overall impact would be expected to be low.

Livestock Grazing. In this alternative, the allotments would be less intensively managed. Existing range improvements would be maintained and additional improvements would be considered. The initial allocation would total 201 AUMs, a reduction of 62 AUMs from the 5-year average. However, in the long-term, existing AUMs would be maintained as a result of vegetation manipulations, including approximately 58 acres within the WSA. Existing seasons of use would remain in effect.

Vegetation. Timber harvesting would cause a loss of vegetation. Vegetation manipulations would also cause loss of vegetation and changes of vegetative type.

Forestry. Under this alternative, productive forest lands on slopes less than 40 percent would be managed. Eighteen hundred and ten (1,810) acres and 9.3 MMBF of spruce-fir would be suitable for management and available for commercial harvesting.

Recreation Resources. Recreational use would be expected to continue at current levels. Hunting could be adversely affected by timber harvesting, especially if activities would occur during hunting seasons and reduce the number of animals present in the area. Fishing could also be adversely affected as a result of reduced fishing success caused by degradation of aquatic habitat and decreased fish populations.

Existing ROS settings would be adopted as ROS classes. However, no specific actions would be implemented to protect settings, specifically the semi-primitive nonmotorized setting. Timber harvesting and vegetation manipulations could cause a change from semi-primitive nonmotorized to semi-primitive motorized. Such a change would have moderate to high adverse impacts based on the scarcity of semi-primitive nonmotorized settings on public lands in the resource area. However, the overall impact would be low because setting preferences for the major activities occurring within the WSA are almost equal for semi-primitive nonmotorized and semi-primitive motorized settings.

In this option, the entire WSA would remain open to off-road vehicle (ORV) use. Existing ORV users would benefit from this open designation, but such use would be inconsistent with management objectives for the semi-primitive nonmotorized ROS class and conflicts between nonmotorized and motorized activities could occur.

Wilderness Values. Non-designation of the WSA would have short and long-term adverse impacts on wilderness values. Timber harvesting and vegetation manipulations would impair naturalness throughout the WSA. The potential as wilderness would be lost forever in most of the WSA. Because of their location, approximately 10 acres of the WSA above the rim of the Flat Tops would remain "de facto" wilderness. Because of the WSA's small size, non-designation would have virtually no effect on diversity in the National Wilderness Preservation System.

Visual Resources. Under this option, the entire WSA would remain in VRM Class II. The management objective for Class II is that changes caused by a management activity should not be evident in the characteristic landscape; this objective would provide protection of the area's scenic quality.

Transportation. Future proposals for rights-of-way could be approved following a non-designation decision by Congress.

Utility and Communication Facilities. In this alternative, future proposals for such facilities would be handled on a case-by-case basis and could be approved following a non-designation decision by Congress.

Economic Impacts. Initial livestock forage allocations would reduce grazing use by 62 AUMs and reduce local personal income by $2,700 annually. Successful implementation of forage improvement projects would eventually return income from livestock grazing to its current level. Over 9 MMBF of commercial timber species would permit an average annual production of 78 MBF supporting over $10,000 in local income. Income produced by recreation would not be affected.

Consistency With Other Plans. Non-designation of the entire WSA would be partially consistent with the plans and policies of the U.S. Forest Service, White River National Forest. The U.S. Forest Service supports a nonsuitable recommendation for all but approximately 10 acres of the WSA that is above or makes up the physical rim of the Flat Tops (see Figure 6). It is their assumption that Congress intended the rim of the Flat Tops to be the wilderness boundary and that areas below the rim were not to be included. The U.S. Forest Service administers several areas similar to the Hack Lake WSA below the rim of the Flat Tops, but none of these areas were recommended to Congress for wilderness designation in RARE II. Congress agreed with the recommendations and none of the areas were designated or identified for study in the Colorado Wilderness Bill (P.L. 96-560).

Neither Eagle or Garfield Counties have written plans or policies concerning additional wilderness designation.

All Wilderness Option Impacts

Soils. Soil conditions would remain essentially unchanged. Prohibition of timber harvesting and other surface-disturbing activities would benefit soils by precluding soil disturbances that might otherwise occur.

Water Quality. Water quality would remain essentially unchanged, but would be benefited since deterioration would not occur as a result of surface-disturbing activities.

Minerals. Wilderness designation would withdraw 3,360 acres from appropriation under the mining laws and from leasing under the mineral leasing laws, subject to valid existing rights as of the date of designation since designation would not be expected to occur until after the December 31, 1983 withdrawal date established for existing wilderness in the Wilderness Act (Section 4(d)3). Unless valid rights are established prior to the date of designation, the mineral potential of the entire WSA would be foregone. Any mineral leases issued prior to designation would contain stipulations to ensure development of the leases would not impair the WSA's wilderness characteristics.

Aquatic Wildlife. Wilderness designation would protect aquatic habitat and aquatic species, including the threatened Colorado River cutthroat trout, from deterioration caused by surface-disturbing activities.

Terrestrial Wildlife. Wilderness designation would prevent habitat disruption and stress caused by surface-disturbing activities.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option, except vegetation manipulations would be prohibited within the WSA and the final allocation would be 239 AUMs, a reduction of 24 AUMs from current use.

Vegetation. Prohibition of timber harvesting and vegetation manipulations would benefit vegetation by preventing removal or alteration. Natural ecological processes would continue to occur.

Forestry. Timber management and harvesting would not occur.

Recreation Resources. Only primitive types of recreation would occur. Hunting, hiking, and camping would not be affected. Upon designation, the WSA would be closed to ORV use, however, existing ORV use is estimated to be low. Fishing use could decrease since the ORV use is mainly for access to Hack Lake for fishing. Wilderness designation could cause an overall increase in recreational use as a result of increased exposure of the area; however, this increase would be expected to be low.

Existing ROS settings would not change. Wilderness designation would protect 2,301 acres (95 percent) of the semi-primitive nonmotorized setting in the Hack Lake area and the identified recreational features and attractions.

Cultural Resources. Wilderness designation would provide additional protection of the portion of the Ute Trail within the WSA.

Wilderness Values. Wilderness designation would have short and long-term benefits to wilderness values by providing additional protection. The natural character and the outstanding opportunities for primitive recreation and solitude would be preserved. Preservation of wilderness values would in turn protect the identified supplemental values.

Designation of the WSA would have virtually no effect on providing wilderness opportunities within a day's drive of major population centers and would not help balance the geographic distribution of wilderness. However, the small size of the WSA (3,360 acres) in relation to the contiguous Flat Tops Wilderness (235,230 acres) and the fact the WSA would be an addition to this existing wilderness limits the relevancy of a discussion of providing diversity in the National Wilderness Preservation System.

Because of its small size, the WSA would only be manageable for wilderness as an addition to the Flat Tops Wilderness administered by the U.S. Forest Service. To provide for efficient and consistent management with the existing wilderness, administration could be transferred to the U.S. Forest Service through a boundary adjustment or cooperative agreement upon designation. An Act of Congress would be required for a boundary adjustment.

Visual Resources. In this option, the VRM class would be changed from Class II to Class I. The management objective for Class I allows primarily for natural ecological changes which would provide additional protection of the WSA's high visual qualities.

Transportation. Any future applications for rights-of-way would be rejected.

Utility and Communication Facilities. Any future applications for such facilities would be rejected.

Economic Impacts. Prohibition of vegetation manipulations within the WSA would reduce the final livestock forage allocation by 24 AUMs. The annual loss of $1,000 in personal income would not be a significant economic impact. Annual commercial timber production with associated income of $10,000 would also be lost, but with no significant economic impact. Income produced by recreation would not be significantly affected.

Consistency With Other Plans. Wilderness designation of the entire WSA would be mostly inconsistent with the plans and policies of the U.S. Forest Service, White River National Forest. The U.S. Forest Service supports a suitable recommendation for only 10 acres of the WSA above the rim of the Flat Tops. Neither Eagle or Garfield Counties have written plans or policies concerning additional wilderness designation.

Partial Wilderness Option Impacts

In this option, approximately 10 acres of the WSA above the rim of the Flat Tops would be recommended as suitable and the remainder of the WSA would be recommended as nonsuitable as endorsed by the U.S. Forest Service (see Figure 6).

Because of the small acreages in the areas recommended as suitable and their locations, management of, and impacts on, all resources would be the same as described in the No Wilderness Option with the exceptions described below.

Minerals. Wilderness designation of the portion recommended as suitable would withdraw 10 acres from appropriation under the mining laws and from leasing under the mineral leasing laws. Because of the extremely small acreage involved, any adverse impacts would be insignificant.

Wilderness Values. Because of their small size, the 10 acres recommended as suitable would only be manageable for wilderness as an addition to the Flat Tops Wilderness. To provide for efficient and consistent management administration of these portions of the WSA could be transferred to the U.S. Forest Service through a boundary adjustment or cooperative agreement upon designation. Designation of the suitable areas would have no effect on diversity in the National Wilderness Preservation System.

Visual Resources. The VRM class on the 10 acres recommended as suitable would be changed from Class II to Class I.

Consistency With Other Plans. This option would be consistent with the plans and policies of the U.S. Forest Service, White River National Forest. Neither Garfield nor Eagle Counties have written plans or policies concerning additional wilderness designation.

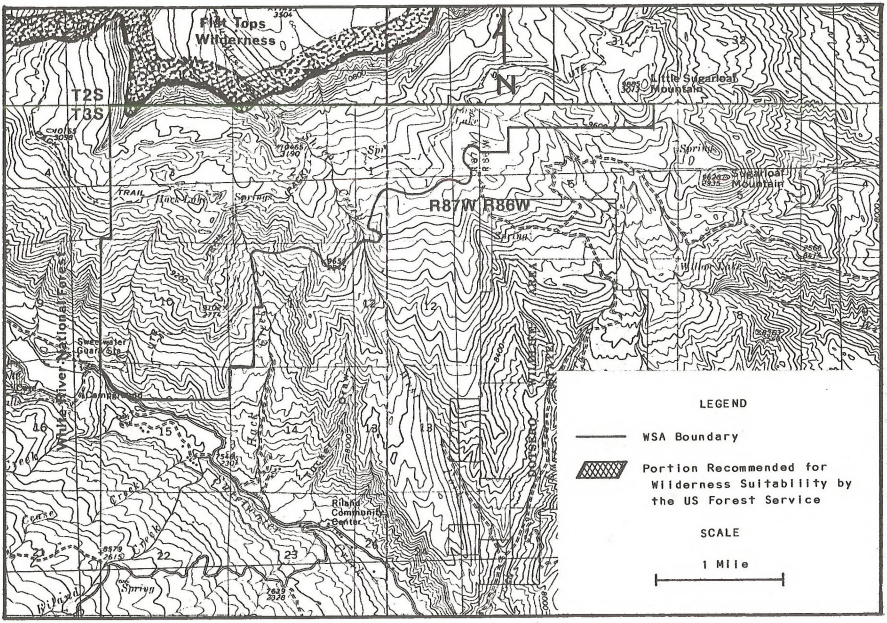
Alternative Recommendation and Rationale

The 10 acres of the WSA above the rim of the Flat Tops are recommended as suitable for wilderness designation and the remainder of the WSA is recommended as nonsuitable. The U.S. Forest Service has taken the position that Congress intended the Flat Tops Wilderness boundary to be the rim of the Flat Tops and that areas below the rim were not to be included. Areas similar to the Hack Lake WSA were not recommended for wilderness in RARE II and these recommendations were accepted by Congress in the Colorado Wilderness Bill (P.L. 96-560). Since the WSA would be manageable as wilderness only as an addition to the Flat Tops Wilderness, this partial wilderness recommendation would be consistent with the RARE II recommendations and with the plans and policies of the U.S. Forest Service. The suitable areas are logical extensions of the Flat Tops Wilderness and would be manageable as wilderness over the long-term. It is

FIGURE 6

HACK LAKE WILDERNESS STUDY AREA

PORTION RECOMMENDED FOR WILDERNESS SUITABILITY BY U.S. FOREST SERVICE



also recommended that administration of the suitable portions be transferred to the U.S. Forest Service through a boundary adjustment upon designation.

Resource Protection Alternative

No Wilderness Option Impacts

Soils. Prohibition of timber harvesting and vegetation manipulations within the semi-primitive nonmotorized ROS class would prevent associated soil disturbances. The no surface occupancy stipulation on mineral leasing on 3,118 acres of the WSA would protect soils by precluding surface disturbance activities.

Water Quality. The restrictions on timber harvesting, vegetation manipulations, and mineral exploration would benefit water quality by preventing increased sediment load in most of the WSA.

Minerals. Impacts on locatable minerals would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

In this alternative, approximately 3,118 acres of the WSA would have a no surface occupancy stipulation on mineral leasing. This stipulation could inhibit mineral development by increasing costs. The 242 acres of the WSA not covered by the no surface occupancy stipulation are within the area under the existing oil and gas lease application.

Aquatic Wildlife. The restrictions on timber harvesting, vegetation manipulations, and mineral exploration would protect all existing fisheries in the WSA by preventing degradation of water quality.

In addition, designation of Heck Lake as an Area of Critical Environmental Concern (ACEC) and habitat improvement would protect and increase populations of Colorado River cutthroat trout. Habitat improvement in the West Fork of Sheep Creek would also benefit the existing fishery; low flows would remain a factor that would limit productivity.

Terrestrial Wildlife. The restrictions on timber harvesting and mineral exploration would benefit all wildlife species by preventing habitat disruption and stress caused by human activity and noise.

Livestock Grazing. In this alternative, the allotments would be less intensively managed. Existing range improvements would be maintained and additional improvements would be considered. The initial allocation would total 463 AUMs, an increase of 262 AUMs from the 5-year average, but 100 AUMs below active preference. Vegetation manipulations, including approximately 24 acres within the WSA, would result in an additional increase of 62 AUMs. Vegetation manipulations would be prohibited within the semi-primitive nonmotorized ROS class, preventing the manipulation of approximately 145 acres within the WSA and the associated potential increase of 60 AUMs. Thus, the final allocation would be 38 AUMs below active preference.

Vegetation. Restrictions on timber harvesting, vegetation manipulations, and mineral exploration would prevent losses or changes of vegetation in 3,118 acres of the WSA. Such losses or changes could occur in the remaining 242 acres of the WSA and might not be mitigated by reclamation.

Forestry. In this alternative, timber harvesting would be prohibited in the semi-primitive nonmotorized ROS class. Although 92 acres and 498 MBF of spruce-fir would be suitable for management and available for commercial harvesting, it is doubtful harvesting would occur because of the reduced volume that would be available.

Recreation Resources. In this alternative, approximately 3,118 acres of the WSA would be included in the Hack Lake Recreation Lands. The recreation lands would have a no surface occupancy stipulation on mineral leasing and would be closed to off-road vehicle (ORV) use. The designation and associated protective actions would protect existing ROS settings and identified recreation features and attractions. Aquatic habitat improvements could enhance fishing by increasing fishing success.

Recreation use for all activities except fishing and ORV use would be expected to continue at current levels. The ORV closure would eliminate motorcycle use, however, existing use is estimated to be low. Fishing use could also decrease since the ORV use is mainly for access to Hack Lake for fishing.

Wilderness Values. Prohibition of timber harvesting and vegetation manipulations, the recreation lands designation and associated protective actions would protect wilderness values on approximately 3,118 acres of the WSA. However, some adverse impacts on naturalness could occur if utility or communication facilities would be proposed within the WSA. The semi-primitive nonmotorized ROS class would be zoned as sensitive for such facilities and protective stipulations would reduce, but might not eliminate, impacts on naturalness. Because of the WSA's small size, non-designation would have virtually no effect on diversity in the National Wilderness Preservation System.

Visual Resources. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Transportation. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Utility and Communication Facilities. In this alternative, a zoning classification for such facilities would be implemented and the semi-primitive nonmotorized ROS class would be zoned as sensitive. This classification identifies areas where restrictive stipulations would be necessary to mitigate impacts. The remainder of the WSA would be zoned as suitable for consideration for utility and communication facilities.

Economic Impacts. Initial livestock forage allocations would almost double existing grazing use and would increase local income by over $10,000 annually. This increase could be significant to the individual permittees, but would not be a significant addition to the income of the area. The increases in allocation from vegetation manipulations would have

similar significance. Although 498 MBF of commercial timber species would be available for harvesting, it would be doubtful that harvesting would occur. However, there would be no significant economic impact.

Consistency With Other Plans. Consistency with other plans would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

All Wilderness Option Impacts

Although management of various resource programs would change in this alternative as described in the No Wilderness Option, the impacts on all resources would essentially be the same as in the All Wilderness Option in the Continuation of Current Management Alternative. The few exceptions are described below.

Aquatic Wildlife. The ACEC designation and aquatic habitat improvements in Hack Lake would provide additional protection and increase populations of Colorado River cutthroat trout. Both actions would be compatible with wilderness designation since they would promote the perpetuation of a threatened species. Specific habitat improvements proposed for the West Fork of Sheep Creek would be evaluated on a case-by-case basis to determine if they would be consistent with wilderness management.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option of this alternative, except vegetation manipulations would not be allowed on approximately 24 acres and would decrease the final allocation by 24 AUMs.

Recreation Resources. Preservation of the WSA as wilderness would cause the recreation lands designation to be duplicative of wilderness designation.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. Even though the recommendation is inconsistent with the plans and policies of the U.S. Forest Service, White River National Forest, it is consistent with the objective of this alternative which emphasizes the protection of natural and cultural values, especially the protection of fragile and unique resource values. Wilderness designation would provide the greatest protection of wilderness values, the threatened Colorado River cutthroat trout, and the semi-primitive nonmotorized ROS setting. Preservation as wilderness would also benefit other resources by minimizing disturbances to soils, surface and sub-surface waters, plant communities, wildlife populations, cultural values, and scenic quality. In addition, most of the resource conflicts with wilderness designation would be eliminated through the management of other resources. The WSA

could be managed as wilderness over the long-term. Since the WSA would be an addition to the Flat Tops Wilderness, it is also recommended that administration of the WSA be transferred to the U.S. Forest Service through a boundary adjustment or cooperative agreement upon designation.

Economic Development Alternative

No Wilderness Option Impacts

Soils. Impacts on soils from timber harvesting and vegetation manipulations would be essentially the same as in the No Wilderness Option in the Continuation of Current Management Alternative. In addition, vegetation conversions to increase water yield would cause short-term increases in erosion.

Water Quality. Increased surface water sediment load could occur as a result of increased erosion from timber harvesting, vegetation manipulations, and vegetation conversions. The impacts to particular streams within the WSA cannot be quantified until the locations of sales, manipulations, and conversions are known.

Water Yield. In this alternative, vegetation could be converted to increase water yield in the semi-primitive motorized and roaded natural ROS classes. Potentially, 40 percent of the conifer vegetation and 50 percent of the aspen could be clearcut in patches 5 to 8 tree heights in diameter and 50 percent of the mountain shrub vegetation could be converted to grass or clearcut. The potential increase in water yield would range from 300 to 715 acre-feet/year (average of 510 acre-feet/year). The overall benefit of the increased water yield in the Colorado River drainage would be low.

Minerals. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Aquatic Wildlife. Designation of Hack Lake as an Area of Critical Environmental Concern (ACEC) and habitat improvements would protect and increase populations of Colorado River cutthroat trout. Habitat improvements in West Fork of Sheep Creek would benefit the existing fishery, but vegetation conversions to increase water yield would not occur in the semi-primitive nonmotorized ROS class and low flows would remain a factor limiting productivity. However, decreases in water quality caused by increased siltation resulting from timber harvesting and vegetation conversions could adversely affect aquatic habitat and associated aquatic wildlife (including Colorado River cutthroat trout) in Hack Lake and Sheep Creek within the WSA and Sweetwater Creek outside of the WSA, but the impacts cannot be quantified until the locations of sale areas and conversion areas are known. Because of its location, aquatic habitat and wildlife in Horse Lake would not be affected.

Terrestrial Wildlife. All wildlife species could be adversely affected in the short-term by timber harvesting and vegetation conversions as a result of habitat disruption and stress caused by human activity and noise. These impacts would be dependent upon the location,

extent, and time of year that activities would occur; however, the overall impact would be expected to be low.

Livestock Grazing. In this alternative, the initial allocation would be 523 AUMs, double the 5-year average, but 40 AUMs below active preference. Vegetation manipulations, including approximately 45 acres within the WSA, would increase the final allocation to 606 AUMS, 43 AUMs over active preference.

Vegetation. Timber harvesting, vegetation manipulations, and vegetation conversions would cause losses of vegetation and changes in vegetative types.

Forestry. In this alternative, timber harvesting through selective cutting would occur on productive forest lands. Eighteen hundred and ten (1,810) acres and 9.3 MMBF of spruce-fir would be available for commercial harvesting.

Recreation Resources. Designation of the Hack Lake Recreation Lands and the off-road vehicle closure would protect ROS settings and identified recreation features and attractions. Aquatic habitat improvements could enhance fishing by increasing fishing success. Timber harvesting would cause a short-term change of the existing semi-primitive nonmotorized class to semi-primitive motorized. However, the overall adverse impact would be minimal since the physical setting would not be altered to the extent that would preclude long-term management as semi-primitive nonmotorized.

The ORV closure would eliminate motorcycle use, however, existing use is estimated to be low. Fishing use could also decrease since the ORV use is mainly for access to Hack Lake for fishing. However, trailhead facilities for the Ute Trail and the West Fork of Sheep Creek and road improvements on the Sheep Creek road would improve access to the WSA and could result in low increases in recreation use for all activities, including fishing.

Wilderness Values. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Visual Resources. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Transportation. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Utility and Communication Facilities. Impacts would be the same as in the No Wilderness Option in the Resource Protection Alternative.

Economic Impacts. Initial livestock forage allocations would double the existing grazing use and would increase local personal income by approximately $10,000 annually. This increase could be significant to the individual permittees, but would not be a significant addition to local income. The increases in allocation from vegetation manipulation would have similar significance. Over 9 MMBF of commercial timber species permit an average annual production of

78 MBF, supporting over $10,000 in local income. Income produced by recreation would not be significantly affected.

Consistency With Other Plans. Consistency with other plans would be the same as in the Continuation of Current Management Alternative.

All Wilderness Option Impacts

Impacts would be the same as in the All Wilderness Option in the Resource Protection Alternative except for the impacts described below.

Water Yield. Vegetative conversions to increase water yield would not occur and water yield from the WSA would not be increased.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option of this alternative, except vegetation manipulations would not be allowed on approximately 45 acres and would decrease the final allocation by 45 AUMs. The final allocation would be 561 AUMs, 2 AUMs below active preference.

Economic Impacts. Prohibition of vegetation manipulations within the WSA would reduce the final livestock forage allocation by 45 AUMs. The annual loss of $2,000 in personal income would not be a significant economic impact.

Partial Wilderness Option Impacts

In this option, approximately 10 acres of the WSA above the rim of the Flat Tops would be recommended as suitable and the remainder of the WSA would be recommended as nonsuitable as endorsed by the U.S. Forest Service (see Figure 6).

Because of the small acreage in the areas recommended as suitable and their locations, management of, and impacts on, most resources would be the same as described in the No Wilderness Option of this alternative. Impacts on minerals, wilderness values, and visual resources would be the same as in the Partial Wilderness Option in the Continuation of Current Management Alternative.

Alternative Recommendation and Rationale

The 10 acres of the WSA above the rim of the Flat Tops are recommended as suitable for wilderness designation and the remainder of the WSA is recommended as nonsuitable. The rationale is the same as in the Continuation of Current Management Alternative.

Preferred Alternative

Management of, and impacts on, all resources would be the same as described in the Resource Protection Alternative, with the exceptions that are described below.

No Wilderness Option Impacts

Livestock Grazing. In this alternative, the initial allocation would be 477 AUMs, nearly double the 5-year average, but 86 AUMs below active preference. Vegetation manipulations, including approximately 55 acres within the WSA, would result in an additional increase of 86 AUMs. The final allocation would be 563 AUMS (active preference).

Recreation Resources. In this alternative, the area would not be designated as recreation lands but would be managed to protect recreation values and provide recreation opportunities. The area would have a no surface occupancy stipulation on mineral leasing and would be closed to off-road vehicle (ORV) use. These actions would protect existing ROS settings and identified recreation features and attractions.

The ORV closure would eliminate motorcycle use, however, existing use is estimated to be low. Fishing use could also decrease since the ORV use is mainly for access to Hack Lake for fishing. However, trailhead facilities for the Ute Trail and the West Fork of Sheep Creek would improve access to the WSA and could result in low increases in recreation use for all activities, including fishing.

Wilderness Values. The prohibition of timber harvesting, no surface occupancy stipulation on mineral leasing, ORV closure, and unsuitable zoning for utility and communication facilities would protect wilderness values on 3,118 acres of the WSA. Because of the WSA's small size, non-designation would have virtually no effect on diversity in the National Wilderness Preservation System.

Utility and Communication Facilities. In this alternative, a zoning classification for such facilities would be implemented with 3,118 acres of the WSA zoned as unsuitable. Thus, any future proposals for such facilities would be rejected. The remaining 242 acres of the WSA would be zoned as suitable for consideration for utility and communication facilities; however, because of the location of this acreage, it is doubtful that facilities would ever be located in the area.

All Wilderness Option Impacts

Impacts would be the same as in the All Wilderness Option in the Resource Protection Alternative, except for livestock grazing described below.

Livestock Grazing. The initial allocation would be the same as in the No Wilderness Option of this alternative. Vegetation manipulations would not be allowed on approximately 55 acres and would decrease the final allocation to 508 AUMs, 55 AUMs below active preference.

Economic impacts. Impacts would be essentially the same as in the All Wilderness Option in the Economic Development Alternative.

Partial Wilderness Option Impacts

In this option, approximately 10 acres of the WSA above the rim of the Flat Tops would be recommended and the remainder of the WSA would be recommended as nonsuitable as endorsed by the U.S. Forest Service (see Figure 6).

Because of the small acreage of the areas recommended as suitable and their locations, management of, and impacts on, most resources would be the same as described in the No Wilderness Option of this alternative. Impacts on minerals, wilderness values, and visual resources would be the same as in the Partial Wilderness Option in the Continuation of Current Management Alternative.

Alternative Recommendation and Rationale

The 10 acres of the WSA above the rim of the Flat Tops are recommended as suitable for wilderness designation and the remainder of the WSA is recommended as nonsuitable. The U.S. Forest Service has taken the position that Congress intended the Flat Tops Wilderness boundary to be the rim of the Flat Tops and that areas below the rim were not to be included. Areas similar to the Hack Lake WSA were not recommended for wilderness in RARE II and these recommendations were accepted by Congress in the Colorado Wilderness Bill (P.L. 96-560). Since the WSA would be manageable as wilderness only as an addition to the Flat Tops Wilderness, this partial wilderness recommendation would be consistent with the RARE II recommendations and with the plans and policies of the U.S. Forest Service. The suitable areas are logical extensions of the Flat Tops Wilderness and would be manageable as wilderness over the long-term. The restrictions on other resource management would protect wilderness values in most (3,108 acres), if not all, of the nonsuitable portion of the WSA. It is also recommended that administration of the suitable portions be transferred to the U.S. Forest Service through a boundary adjustment upon designation.

Comparative Analysis of Alternatives

The Resource Protection Alternative would provide the greatest benefit to wilderness values in the WSA since the entire WSA would be recommended as suitable for wilderness designation, thus preserving all wilderness values. Although only 10 acres would be recommended as suitable in the Preferred Alternative, wilderness values would be protected on approximately 3,108 acres of the nonsuitable area because of restrictive management including the off-road vehicle closure, objectives for the semi-primitive nonmotorized ROS class, unsuitable zoning for utility and communication facilities, no surface occupancy stipulation on mineral leasing, and prohibition of timber harvesting and vegetation conversions. The Continuation of Current Management and Economic Development Alternatives would have the greatest adverse impacts since the potential as wilderness would be lost forever on 3,350 acres of the WSA, primarily from losses of naturalness caused by other resource activities.

Soils, water quality, wildlife, vegetation, recreation resources, cultural resources, and visual resources would benefit the most in the Resource Protection and Preferred Alternatives

and be most adversely affected in the Continuation of Current Management and Economic Development Alternatives. The only effect on livestock grazing would be whether or not vegetation manipulations to increase livestock forage would occur within the WSA. These manipulations could occur in all alternatives except the Resource Protection Alternative in which manipulations could occur only outside of the WSA boundary. Forestry would benefit the most in the Continuation of Current Management and Economic Development Alternatives and be most adversely affected in the Resource Protection and Preferred Alternatives. The lack of restrictions in the Continuation of Current Management and Economic Development Alternatives would provide the greatest benefit to minerals. The Resource Protection Alternative would have the most restrictions on mineral development, but the Preferred Alternative would be almost as restrictive. None of the alternatives would have significant beneficial or adverse effects on the local economy.

Public Comments

Ten comments were received during the intensive inventory, six favoring WSA identification and four against WSA identification. Specific items addressed by those favoring WSA identification stated the unit was mostly untouched by man; in a relatively natural state; contains a virgin forest; topography and vegetation screen imprints and provide solitude; the cabins are old, blend in with the landscape and are in character with a primitive area; the wire fence is mostly screened but could be easily removed; recreation opportunities include hiking, backpacking, horseback riding, viewing, photography, climbing, and nature study and are enhanced by the adjacent wilderness; supplemental values include the lava flow, wildlife, vegetation, the transition of environments, and the contiguousness to the Flat Tops; and WSA identification would not preclude needs for winter range improvement for wildlife. Those comments opposed to WSA identification stated the unit is too small and unnatural to be a WSA; an improved trail for motorbikes exists in the unit; a jeep road borders almost all of the eastern boundary, the unit borders a county road with heavy traffic; solitude is not possible because of the narrow configuration of the eastern part of the unit and the entire valley including a heavily travelled road is visible from 3/4 of the unit; the unit is not unique either in natural features or climate; the unit is contiguous to the Flat Tops Wilderness for less than one mile; livestock grazing occurs and the unit may contain valuable minerals; and the unit contributes to the economic and social stability of Eagle County and should remain non-wilderness.

Public workshops were held in May, 1982 to obtain comments on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. Ten comments, mostly general in nature, concerning the Hack Lake WSA were received. Seven comments supported designation of the entire WSA, one comment supported designation of the portions of the WSA above the rim of the Flat Tops (partial wilderness option) and two comments opposed wilderness designation of the entire WSA. Specific comments favoring designation of the entire WSA stated that the WSA is diverse in character and provides unique recreational opportunities; has recreational value; and that the WSA contains outstanding wilderness values and scenic, wildlife, and botanic features of certain national importance and would make a worthy addition to the National Wilderness Preservation System. The comment favoring the partial wilderness option stated only the two pieces identified by the U.S. Forest Service need be wilderness.

The Eagle and Garfield County Commissions were also briefed on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. Neither commission had strong feelings about the WSA but thought the Partial Wilderness Option was appropriate.

BULL GULCH WILDERNESS STUDY AREA
CO-070-430

Affected Environment

Setting

The Bull Gulch WSA (15,000 acres) is located south of Burns along the Colorado River (see Figure 1). The WSA is characterized by steep, rugged topography with deeply incised gulches and canyons. Elevations range from 6,400 feet along the Colorado River, the western boundary, to 9,700 feet along the eastern boundary. Figure 7 is a map of the WSA.

Soils

The majority of the WSA, mainly along the Colorado River and the central portion, consists of the Cushool-Rentsac-Orthents-Rock Outcrop soil association. These soils are shallow to moderately deep and well to excessively drained. The erosion condition class for this association is moderate to high (5 to 8 tons/acre/year). The southeastern portion of the WSA consists of the Dollard-Pinelli-Unnamed Rock Outcrop-Shale soil association which is shallow to deep and well drained. The remainder of the WSA consists of the Tridell-Brownsto-Forrelle soil association which is deep and well to excessively drained. The erosion condition class for the two latter soil associations is moderate (5 tons/acre/year).

Water Resources

The entire WSA drains into the Colorado River. Only 2 perennial streams are within the WSA, Alamo and Posey Creeks, but the WSA contains several springs and numerous intermittent drainages. Water quality information is not available for the WSA.

Minerals

Seven mining claims, 3 lode claims and 4 placer claims, are located within the WSA. Locatable minerals known to potentially exist in the WSA are vanadium, uranium, gypsum, and gold. Vanadium and uranium are undiscovered and gypsum and gold have been identified as being subeconomic and also undiscovered. The only saleable minerals known to exist in the WSA are sand and gravel which have also been identified as subeconomic and undiscovered. Potential leaseable minerals include sodium, potassium, and oil and gas and each has been identified as undiscovered. However, the WSA is prospectively valuable for oil and gas because thick sediments exist, even though there are no known geologic structures. Most of the WSA has been leased for oil and gas or is within an oil and gas lease application (see Figure 8). Leases on approximately 8,700 acres of the WSA were issued prior to passage of the Federal Land Policy and Management Act (FLPMA) of 1976. Geophysical exploration has occurred in the general area and a well was drilled on private land east of the WSA but was nonproductive. Six hundred forty acres in Section 16, T. 3 S., R. 85 W. (see Figure 8) have the minerals reserved to the State of Colorado. The only strategic or critical material listed in the Stockpile Report to Congress that potentially exists within the WSA is vanadium.

FIGURE 7

BULL GULCH WILDERNESS STUDY AREA

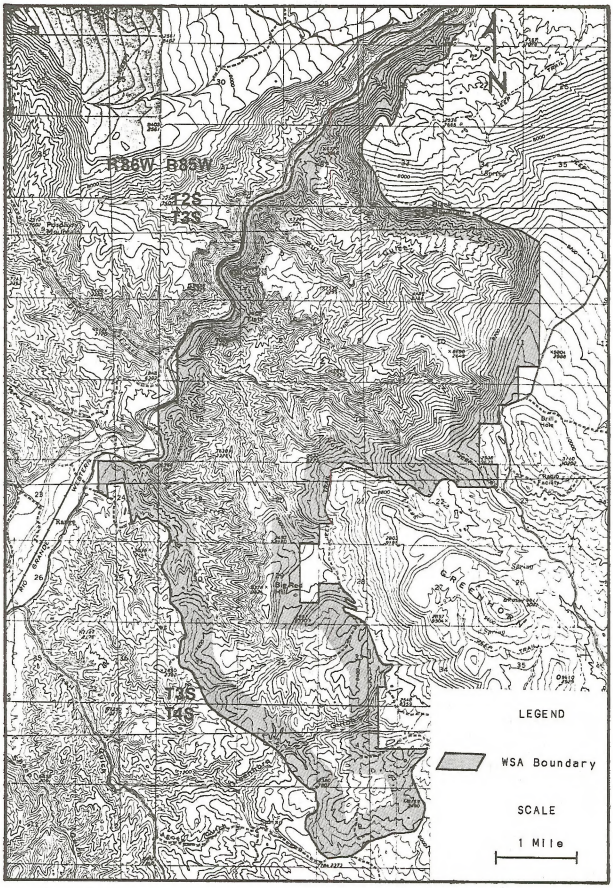
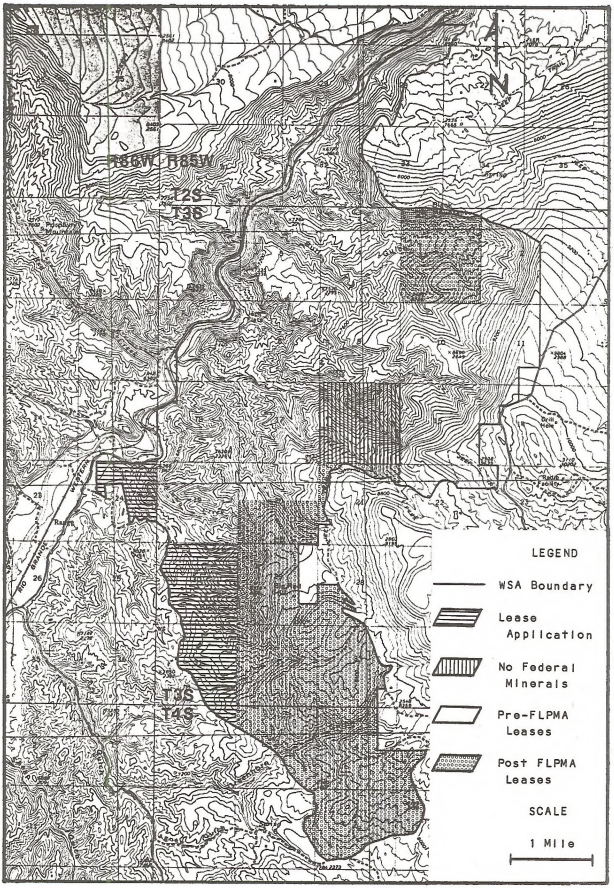


FIGURE 8

BULL GULCH WILDERNESS STUDY AREA
OIL AND GAS LEASES



Aquatic Wildlife

The only aquatic habitat within the WSA is the Colorado River along the western boundary. The river supports trout and whitefish and has been rated as an above average fishery.

Terrestrial Wildlife

Deer, elk, and mountain lion, as well as many small game and non-game species exist in the area. Much of the WSA provides winter range for deer and elk and the elevations below 7,500 to 8,000 feet, mainly the southern and western portions of the WSA, are crucial winter range for both species. In addition, the area near Big Red Hill is an elk migration route.

The very southeastern part of the WSA provides winter range and strutting grounds for sage grouse. The cliffs along the western boundary are a concentration area for raptors, especially red-tailed hawks, prairie falcons, and golden eagles. In addition, large trees along the Colorado River provide hunting perches for bald eagles.

Livestock Grazing

Portions of 5 grazing allotments exist within the WSA. The total existing use (5-year average) for these allotments is 1,444 AUMs with seasons of use between May 1 and August 31 and between October 15 and October 30.

Range improvements within the WSA include 5 small reservoirs, 2 springs, a short irrigation ditch, and a small earthen diversion dam, all located near the eastern boundary, and 3 fences in the southern portion of the WSA.

Vegetation

The WSA is dominated by the pinyon-juniper woodland and the semi-desert shrub vegetation types. Some small mixed conifer and aspen forest stands are present along the eastern boundary. A relict community of ponderosa pine exists near the head of Bull Gulch.

Forestry

Productive forest lands mainly occur along the eastern boundary of the WSA and include Douglas fir, aspen, Englemann spruce, and subalpine fir. In addition, the western side of Black Mountain contains ponderosa pine. Productive forest lands total 615 acres within the WSA with a total volume of 2.3 million board feet (MMBF).

Productive woodlands occur in the southern portion of the WSA mainly south of Alamo Creek and total 1,765 acres with a total volume of 24,000 cords.

Recreation

No complete recreation use data for the WSA is available. Visitor use estimates were made in 1979, and 1980 use data is available for floatboating. Visitor use estimates for 1979 indicate approximately 720 fishing visits, 90 camping/hiking visits, 200 off-road vehicle visits, and 410 big game hunting visits occur annually. In 1980, approximately 4,230 floatboating visits occurred between Catamount Bridge and Twin Bridges, the segment of the Colorado River that is partially within the WSA. Approximately 93 percent of the floatboating use is through commercial outfitters.

The recreation inventory identified several recreation features and attractions within the WSA including the high quality scenery of the cliffs between Bull Gulch and Black Mountain and the unusual spires and pinnacles near Jack Flats, raptor viewing opportunities, the diversity of environments, and the relict community of ponderosa pine.

The Recreation Opportunity Spectrum (ROS) inventory identified 3 ROS setting opportunities within the WSA. Approximately half of the WSA (7,531 acres) has been identified as semi-primitive nonmotorized. This setting is scarce on public lands in the resource area and information on visitor preferences for settings associated with various activities indicates a high preference for this setting. Approximately 5,325 acres of the WSA are within the semi-primitive motorized setting and 2,144 acres are within the roaded natural setting.

Cultural Resources

Five archeological sites have been recorded within the WSA. Four of the sites are campsites or lithic scatters and one site contains tipi poles which are a rare occurrence.

Paleontological Resources

No paleontological resources have been identified within the WSA.

Wilderness Values

Mandatory Wilderness Characteristics

Size. The Bull Gulch WSA contains 15,000 acres of public land administered by the BLM and does not include any state or private lands. The configuration is a blocked form in the center with narrower extensions to the north and south. The center blocked portion of the WSA is approximately 3 miles long and 4 miles wide. The northern extension is approximately 3 miles long tapering from 1 mile to one-half mile in width. The southern extension is approximately 5 miles long and 2 miles in width.

Naturalness. Eleven ways enter the WSA and dead end without traveling across the entire length or width of the WSA. The majority of the ways are concentrated in the southern extension of the WSA. All of the ways are two-tire tracks with vegetation growing between the tracks. A way along Posey Creek enters the WSA about one mile from the western boundary. The steep gulch which encloses the creek drainage screens the way from view and reduces the effect on naturalness to a minimum level. Two ways enter from the southwestern boundary and travel one-half and three-quarters of a mile, respectively, into the WSA. Both of these ways pass through stands of pinyon-juniper woodland and are well screened by vegetation and the rolling topography of the area. Neither of the ways are visible from a distance and both have a very minor impact on the WSA's naturalness. Three ways, three-quarters of a mile in length, enter from the southern boundary and follow along drainages toward the center of the WSA. The combination of topography and sagebrush vegetation screen these ways from distant view and all of the three have a minor impact on naturalness. A way enters the unit from the southwestern boundary and extends 1 mile into the unit before forking into 3 branches, each about one-half mile long. This way passes through an area of sparse sagebrush vegetation and has a moderate impact upon the naturalness of the immediate area. The way and its forks lie between 2 ridges which effectively screen the imprint from the remainder of the WSA and reduce the overall effect of the imprint on the natural quality of the WSA. Two forks of a way enter from the eastern boundary and travel along both sides of Red Hill through the sagebrush. In addition to the vegetative screening, the topography blocks any sight of the imprints from within the WSA.

Dense aspen stands reduce the visibility of the 3 forks of the way which enter the unit from the central eastern boundary. The short length and existing screening reduce the impacts of ways. The way which enters the WSA from the east above the Bull Gulch drainage passes through an area with sagebrush vegetation and dead ends one and one-quarter mile from the boundary. The vegetative screening and elevated topography of this section of the WSA reduces the visibility of the way.

Water developments which include 5 small reservoirs, 2 springs, a short irrigation ditch, and a small earthen diversion dam are located along the eastern boundary. Each of these developments blend in with the surroundings either as a result of vegetation or topographic screening, causing them to be substantially unnoticeable imprints of man. The very limited size of the developments and their proximity to the WSA's boundary further reduce the effects on the quality of naturalness.

The fences which exist are concentrated in the southern section of the WSA. Two fences run east and west across the WSA and have a spur which runs to the north from the center of the east-west line. These fences are four-strand barbed wire strung on 4 foot posts and pass through areas of pinyon-juniper and sagebrush vegetation on gently rolling hills. The screening provided by the vegetation and topography reduces the visibility of the fences and negates any impact they may have on the quality of naturalness.

The only remaining imprint of man is the wreckage of a vehicle along the western boundary which could be easily removed. However, because the vehicle is on the WSA's boundary it has an insignificant effect on the overall naturalness of the WSA.

The WSA is characterized by steep terrain dissected with narrow canyons and gulches. The majority of the imprints of man occur in the southern and eastern section of the WSA where the terrain begins to level out and has been more accessible to motorized vehicles. The vegetation changes with increases in elevation east from the Colorado River. Effective screening is provided by the vegetation types that are present (sagebrush, pinyon-juniper, aspen, and spruce). The combination of vegetative and topographic screening minimizes the impacts of man's imprints on the quality of the naturalness. Since the majority of imprints are concentrated along the boundaries, the interior section of the WSA retains a very high quality of naturalness. The imprints of man which do exist have not effected either the natural landforms or ecosystems of the WSA. The WSA retains its primeval character and the imprints of man have not altered the natural systems of the WSA.

The ways which exist within the WSA are a result of the passage of vehicles rather than construction. These two-tire tracks currently have vegetation growing between them and would quickly rehabilitate and revegetate if closed to vehicular travel. The WSA receives approximately 14 to 16 inches of precipitation annually which would be sufficient to accelerate the process of revegetation. Since the majority of the ways are located in sagebrush or pinyon-juniper and ground cover is typically sparse in those vegetative types, only a limited amount of vegetative recovery on the tire tracks would be required to return them to a natural appearing condition.

Fencing and spring developments are impacts on naturalness which may be allowed in a designated wilderness, and therefore do not necessarily need to be returned to a natural condition (see Wilderness Inventory Handbook). However, both these imprints and the other water development imprints could be returned to a natural condition by the forces of nature and hand labor. The water developments are currently in the process of revegetating. Halting maintenance and reseeding the imprints would accelerate the natural rehabilitation processes. Hand labor could remove all fences or those sections of fence which are determined to be inconsistent with the wildland values or qualities of the WSA. However, fences and spring developments in existence

at the time of wilderness designation can be allowed to remain in place and be maintained (see Wilderness Management Policy).

Previous to a discussion of the influences of outside sights and sounds and their influence on the naturalness of the unit, a reference should be made to the context in which they will be evaluated. Interpretation of the congressional report on the 1978 Endangered American Wilderness Act indicates that outside sights and sounds can have positive influences on wilderness values or can outweigh the benefits of wilderness designation.

The topographic orientation of the WSA restricts influences of outside sights and sounds to the western boundary of the unit. This boundary follows along the Denver and Rio Grande Western railroad or the gravelled county road, both of which are adjacent to the Colorado River. Passing automotive and train traffic and scattered homesites are visible from the WSA. The steep red sandstone cliffs and pastoral lands along the Colorado River minimize the influences of man's activities outside the WSA. The overall visual impressions from within the WSA are of natural and pastoral landscapes.

The combination of size, vegetative and topographic screening, and limited negative influences of outside sights and sounds of man's activities enhance the quality of naturalness within the WSA. Those imprints of man which exist within the WSA have a negligible influence on the overall high quality of naturalness.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation. The size, topographic screening and orientation, vegetative screening, and configuration combine to provide outstanding opportunities for solitude in the WSA. The dense pinyon-juniper stands and deep canyons and gulches including Posey and Alamo Creeks and Bull Gulch provide numerous opportunities for isolation and screening from sights and sounds of other individuals in the western portion of the WSA. The eastern portion of the WSA rises up from the canyons through gradual rolling topography to a ridge reaching 9,700 feet. Aspen and spruce-fir take over as the dominant vegetation, blocking out sights and sounds and increasing opportunities for solitude.

The northern extension of the WSA is an extremely steep cliff wall adjacent to the Colorado River. Opportunities for solitude on the cliff are restricted because the topography limits the number of possible travel routes. This small portion of the unit where solitude is limited does not diminish the overall high quality of solitude within the WSA. The southern extension, although narrow, contains sufficient topographic and vegetative screening to provide numerous secluded places.

The topographic orientation of the WSA channels views to the northwest. This view limits sights and sounds of activities of man outside of the unit to the portion of the WSA along the Colorado River. Visitors along the river are affected by the railroad and county road which are adjacent to the upper Colorado River and the WSA's western boundary, but the railroad and county road do not impact the rest of the WSA. Approximately 22 trains with a length of 60 cars pass by the WSA on a daily basis. The railway does not cross the road at any point adjacent to the WSA and consequently no horn signals are required as these trains pass the WSA. Less than 250 vehicles travel along the gravelled county road on a daily basis. The sound of both the train and automotive traffic are muffled by the river and geologic formation of Red Canyon through which they pass.

Beyond the river corridor, views are offered of the Flat Tops Wilderness and national forest lands below the ridge of the Flat Tops. These outstanding views provide a feeling of isolation and a special solitude in the context of the geographical location of the WSA.

The diversity of landforms, geological formations, and vegetation offers numerous opportunities for recreation.

The numerous gulches and drainages offer a unique environment for hiking, specifically Bull Gulch, Posey Creek, and Alamo Creek. In the eastern portion of the WSA, the rolling to steep topography and the variety of vegetation including pinyon, Douglas fir, blue spruce, and aspen offer outstanding opportunities for horseback riding and backpacking. The cliffs along the Colorado River are not conducive for technical climbing, but do provide opportunities for scrambling between pinnacles and other rock formations. The hiking and backpacking opportunities are enhanced by the several springs within the WSA, some of which provide good drinking water.

A wide range of wildlife is present within the WSA resulting from the diverse topography and vegetation. Deer and elk winter in the western and southwestern portions; mountain lion, coyote, and bobcat populations are also found in the WSA. The cliffs along the Colorado River are a concentration area for raptors. This wide range of wildlife and predatory birds offers prime opportunities for hunting, bird watching, and photography.

The steep sandstone cliffs along the Colorado River, with some unusual pinnacles in the Jack Flats area, offer excellent opportunities for sightseeing and photography. The numerous gulches are also very scenic and contain unusual sandstone formations which have been carved from years of weathering by wind and water. Autumn heightens the sightseeing and photography opportunities in the eastern portion of the WSA with a colorful display of yellow and gold aspen leaves contrasting with the dark spruce-fir forest and red rock.

Fishing and floatboating opportunities are available on the Colorado River.

Opportunities for snow-shoeing are available in the eastern portion of the unit. Cross-country skiing is also possible, but is restricted by the steep terrain.

The diversity of ecosystems with the WSA enhances primitive and unconfined recreation by providing for a variety of opportunities and features. No inhibiting factors exist which would diminish the quality of these opportunities; consequently, the WSA is considered to have an extremely high value in providing numerous primitive and unconfined recreational opportunities. However, because of the proximity of the railroad and the county road to the Colorado River, floatboating is not considered to be a "wilderness type" of recreation experience.

Legal access to the WSA is available from public lands along the Colorado River on the western boundary, from the Trail Gulch area on the southern boundary, and the Big Red Hill area on the southeastern boundary. This access ensures the WSA can be used by the public.

Special Features

The unusual sandstone pinnacles and geological formations along the Colorado River provide the WSA with geological, educational, and scenic values. The diversity of ecosystems including the riparian areas along the Colorado River, the arid cliffs and sagebrush areas, the spruce-fir and aspen forests, and the relict community of ponderosa pine offer ecological and educational significance.

Nesting sites of the prairie falcon and hunting perches for the endangered bald eagle have been identified. Mountain lion are suspected to inhabit the area, although there has been no official siting. Deer and elk winter range areas are located in the western and southwestern portions of the WSA.

A majority of the area, mainly the central and eastern portions of the WSA, has been rated as high quality (Class A) scenery in the Visual Resource Management analysis.

These supplemental values enhance the opportunities for, and quality of, primitive and unconfined recreation in the WSA. Additionally, they provide scenic value and possess scientific and educational values for study of the geologic formations and ecosystems of this section of the Colorado River Canyon.

Diversity in the National Wilderness Preservation System

The Bull Gulch WSA is dominated by the potential natural vegetation type defined by Kuchler (1964) as juniper-pinyon woodlands. The only place where this vegetation type occurs within the southern Rocky Mountain physiograpphic region (Bailey 1978) is along the Colorado River. This WSA is the only area within the physiographic region with wilderness potential for this vegetation type. However, the juniper-pinyon woodlands vegetation type is prevalent in the physiographic regions to the west and south of the Glenwood Springs Resource Area and is the dominant vegetation type of numerous BLM WSAs and National Park Service wilderness study areas in the states of Utah, Arizona, New Mexico, and also BLM WSAs in western Colorado outside the southern Rocky Mountain physiographic region.

Standard Metropolitan Statistical Areas (SMSAs) within a day's driving time (5 hours) of the Glenwood Springs Resource Area are shown in Table 1. Existing wildernesses and other wilderness study areas within a day's driving time of the SMSAs are listed in Appendix 2.

Visual Resources

Three tentative visual resource management (VRM) classes have been identified within the WSA. Approximately 9,813 acres are in Class II which allows for changes in the characteristic landscape, however, such changes should not be evident. Approximately 6,714 acres of this Class II area qualify for consideration as an area of critical environmental concern (ACEC) because the visual resources are somewhat rare or unique in the physiographic region. Three hundred fifty-eight acres are Class III which allows changes to be evident, but the changes should be subordinate to the existing landscape character. The remaining 4,829 acres are Class IV in which changes may subordinate the original landscape character.

The majority of the WSA was identified as high quality (Class A) scenery in the VRM inventory. The southern portion of the WSA, mainly south of Alamo Creek, was identified as low quality (Class C) scenery. Visual sensitivity for the WSA is moderate to high. The western portion of the WSA is in the foreground distance zone from the the Colorado River corridor. The cliffs in the eastern portion of the WSA are in the background distance zone, with the remainder of the WSA in the seldom seen zone.

Land Tenure

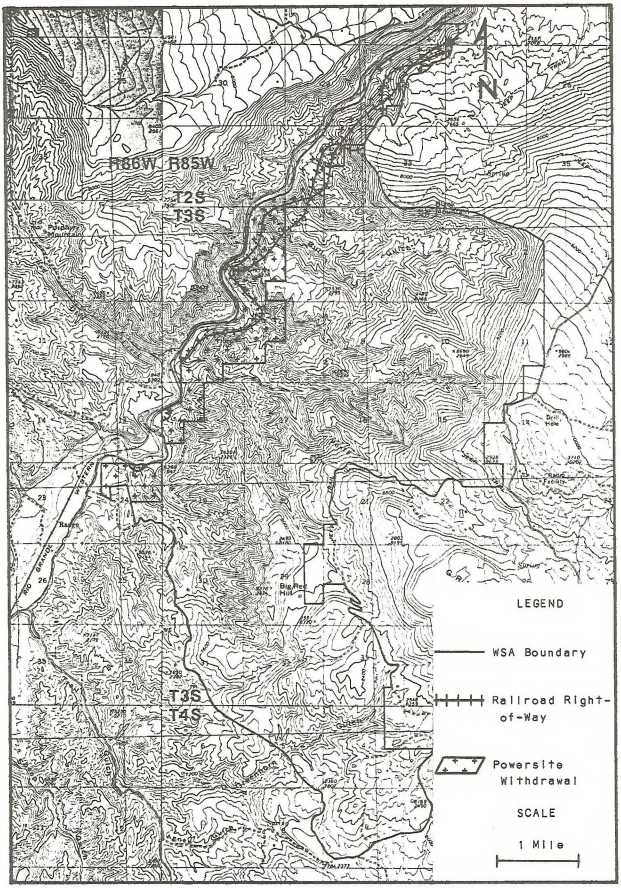
The entire WSA is public land administered by the BLM. All minerals are owned by the federal government except in section 16, T.3S., R.85W., where the minerals are reserved to the State of Colorado (see Figure 8). Four power site withdrawals exist along the Colorado River and the western boundary of the WSA (see Figure 9). The BLM is currently conducting a review of withdrawals as mandated by Section 204 of FLPMA.

Transportation

There are four rights-of-way for railroads along the western boundary (see Figure 9). The railroad, as constructed, does not conform to any of these rights-of-way.

FIGURE 9

BULL GULCH WILDERNESS STUDY AREA
WITHDRAWALS AND RIGHTS-OF-WAY



Legal access to the WSA is limited, but does exist from public lands along the Colorado River (although the river does limit physical access) and from public lands along Trail Gulch and Big Red Hill.

Utility and Communication Facilities

No utility or communication facilities exist within the WSA and there are no known proposals.

Air Quality

The entire WSA has been given a Class II air quality classification which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. Air quality is within the applicable Class II State and National Ambient Air Quality Standards.

Social and Economic Conditions

The primary economic activities occurring within the WSA are livestock grazing and recreation. All or part of 5 grazing allotments are within the WSA, but the percentage of the total 1,444 AUMs in these allotments that is provided from within the WSA cannot be determined. This total grazing use is estimated to contribute $65,000 toward local personal income.

Incomplete recreation use estimates indicate that recreation activities, occurring at least partially within the WSA, generate almost $200,000 annually in direct local expenditures. Those expenditures support over $100,000 in local income and 15 man-years of employment. Floatboating in and near the WSA accounts for three-fourths of the recreation expenditures ($145,000).

No timber production is presently occurring within the WSA, but approximately 1 MMBF of commercial timber and 24,000 cords of fuelwood exist within the WSA.

No mineral production currently occurs within the WSA and all identified mineral resources are subeconomic.

A division exists among residents of the resource area on the concept of wilderness. An apparent majority is opposed to additional wilderness designation. Support for additional wilderness designation tends to come from younger residents, more recent arrivals to the area, and residents in the resort areas.

A study of wilderness in Colorado (Walsh 1981) estimated that 54 percent of Colorado residents would prefer to have more wilderness designated than existed in 1980 (about 1.2 million acres), and 46 percent would prefer twice as much wilderness (5 million acres) than existed after passage of the Colorado Wilderness Bill. This study also shows that many of the reasons for valuing wilderness are for indirect uses or appreciation of the intrinsic values for wilderness.

Twelve comments were received during the intensive wilderness inventory, seven favoring and five opposed to WSA identification (see Public Comments section for more information).

Environmental Consequences

Continuation of Current Management Alternative

No Wilderness Option Impacts

Soils. The most significant impact to soils would occur as a result of timber harvesting, both for sawtimber and fuelwood. The potential increase in erosion would range from 265 to 458 tons per year. Additional adverse impacts to soils could occur from potential mineral exploration, but the impacts cannot be determined until the extent of exploration would be known.

Water Quality. Water quality in Posey and Alamo Creeks would not be affected by timber harvesting. Increased surface water sediment load in the Colorado River could occur as a result of erosion from timber harvesting and potential mineral exploration, but the overall adverse effect would be low.

Minerals. Under the assumption that undiscovered minerals are subeconomic, it would be doubtful that extensive exploration or development for locatable minerals would occur. However, in this option, the WSA would remain open to mineral location. There would be no deadline for proving the economic feasibility of a mining claim and claims which meet the "prudent man test" could be patented and transferred into private ownership.

In this alternative, the western portion of the WSA within one-half mile of the Colorado River would have a no surface occupancy stipulation on mineral leasing. This stipulation would not affect existing leases, but would affect renewals or new leases. The stipulation would not eliminate exploration and development but would increase costs. Oil and gas is undiscovered and can be assumed to be subeconomic. However, the extent of mineral leases within the WSA and mineral exploration near the WSA indicates significant interest in the area. Therefore, the probability of oil and gas exploration and development cannot be predicted. The steep topography in most of the WSA may limit potential future exploration, at least initially, to the southern and extreme eastern portions of the WSA. In this option, no additional future restrictions on leasing, exploration, or development would occur except those designed to prevent unnecessary or undue degradation of the environment.

Aquatic Wildlife. Decreases in water quality caused by increased siltation from timber harvesting and potential mineral exploration would have negligible adverse impacts on aquatic habitat and aquatic wildlife in the Colorado River.

Terrestrial Wildlife. Fuelwood harvesting would benefit wildlife, especially deer and elk, by removing the pinyon-juniper overstory and allowing conversion to forage species. This would be a significant local benefit because most of the harvesting would occur in crucial winter range. However, timber harvesting and potential mineral exploration could adversely affect all wildlife species in the short-term because of stress associated with human activity, but the overall adverse impact would be low.

Livestock Grazing. In this alternative, 4 allotments, 2 under existing allotment management plans, would be intensively managed and 1 allotment would be less intensively

managed. Existing range improvements would be maintained and additional improvements would be considered. The final allocation would be 1,444 AUMs (5-year average) and existing seasons of use would remain in effect.

Vegetation. Timber harvesting and potential mineral exploration would cause losses of vegetation and changes in vegetation types. Reclamation might not completely mitigate the losses of vegetation.

Forestry. Under this alternative, productive forest lands and woodlands on slopes less than 40 percent would be managed. Six hundred and fifteen (615) acres of commercial timber species with a total volume of 1 MMBF and 1,765 acres of woodlands with a total volume of 24,000 cords would be available for commercial harvesting. On a sustained yield basis, 8 MBF of timber and 500 cords of fuelwood could be harvested annually.

Recreation Resources. Recreational use and use trends would be expected to continue at current levels. Increased forage resulting from timber harvesting could increase local game populations and increase hunting success. However, hunting could be adversely affected by timber harvesting and potential mineral exploration if activities would occur during hunting seasons and reduce the number of animals present in the area.

Existing ROS settings would be adopted as ROS classes, but no specific actions would be implemented to protect settings, specifically the semi-primitive nonmotorized setting. However, the steep topography would limit the potential degradation of the semi-primitive nonmotorized setting.

In this option, the entire WSA would remain open to off-road vehicle (ORV) use and would benefit existing ORV users. The overall effect would be low because of the low amount of use that is presently occurring.

Wilderness Values. Non-designation of the WSA would have short and long-term adverse impacts on wilderness values. Timber harvesting would impair naturalness on approximately 4,585 acres of the WSA. Potential mineral exploration could impair naturalness throughout the WSA, but the steep topography could limit exploration, at least initially, to the southern and extreme eastern portions of the WSA. Thus, wilderness potential would be lost on 4,585 acres and could potentially be lost on the remainder of the WSA. Non-designation of the WSA would have a local adverse impact on diversity since the WSA's ecosystem is not currently represented in the local wilderness supply. The effects on diversity on a regional or national level cannot be determined at this time; currently, this ecosystem is not well-represented in the National Wilderness Preservation System, but studies have not been completed for most of the WSAs with this same ecological characterization. Because of the WSA's relatively small size and the abundant local supply of wilderness, non-designation would have little effect on providing wilderness opportunities within a day's drive of major metropolitan areas or expanding the geographic distribution of wilderness.

Visual Resources. Under this option, VRM classes would be adopted as described in the affected environment. The 6,714 acres of the WSA that qualify for consideration as an ACEC would not be designated as such but would receive protection under VRM Class II management objectives.

Transportation. The existing railroad rights-of-way would not be affected. Future proposals for rights-of-way could be approved following a non-designation decision by Congress.

Utility and Communication Facilities. In this alternative, future proposals for such facilities would be handled on a case-by-case basis and, under this option, could be approved following a non-designation decision by Congress.

Economic Impacts. The annual harvest of 8 MBF of commerical timber would increase local income by approximately $1,000. The annual harvest of 500 cords of fuelwood would support approximately $28,000 in local income. Neither effect would be economically significant. Income produced by livestock grazing and recreation would not be affected.

Consistency With Other Plans. Neither Eagle or Garfield Counties have written plans or policies concerning additional wilderness designation.

All Wilderness Option Impacts

Soils. Soil conditions would remain essentially unchanged. Prohibition of timber harvesting and other surface-disturbing activities would benefit soils by precluding soil disturbances that might otherwise occur.

Water Quality. Water quality would remain essentially unchanged, but would be benefited since deterioration would not occur as a result of surface-disturbing activities.

Minerals. Wilderness designation would withdraw 15,000 acres from appropriation under the mining laws and from leasing under the mineral leasing laws, subject to valid existing rights as of the date of designation since designation would not be expected to occur until after the December 31, 1983 withdrawal date established for existing wilderness in the Wilderness Act (Section 4(d)3). Unless valid rights for locatable minerals are established prior to the date of designation, the mineral potential of the entire WSA would be foregone. The withdrawal from mineral leasing would not affect existing leases, but would preclude renewal or new leasing from occurring. Pre-FLPMA leases are considered to be valid existing rights and exploration and development activities may occur even though they may cause impairment to wilderness values. However, the activities may be regulated to prevent unnecessary or undue degradation of the land and its resources or to afford environmental protection. Any new mineral leases issued prior to designation would contain stipulations to ensure that development of the leases would not impair the WSA's wilderness values.

Aquatic Wildlife. Wilderness designation would not affect aquatic habitat or aquatic wildlife.

Terrestrial Wildlife. Prohibition of timber harvesting would prevent increases in forage for deer and elk and would have an insignificant adverse impact. Wilderness designation would protect sage grouse winter range and strutting grounds by precluding surface-disturbing activities.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option.

Vegetation. Wilderness designation would benefit vegetation by preventing removal or alteration. Natural ecological processes would continue to occur.

Forestry. Timber management and harvesting would not occur.

Recreation Resources. Only primitive types of recreation would occur. Hunting, hiking, camping, fishing, and floatboating would not be affected. Upon designation, the WSA would be closed to ORV use. The adverse impact would be low because of the relatively low amount of use that is presently occurring. Wilderness designation could cause an overall increase in use as a result of increased exposure of the area, but this increase would be expected to be low, expecially since legal access to the WSA would remain limited.

Existing ROS settings would not change. Wilderness designation would protect the semi-primitivenonmotorized setting and the recreational features and attractions identified within the WSA.

Cultural Resources. Wilderness designation would provide additional protection of the cultural resources within the WSA.

Wilderness Values. Wilderness designation would have short and long-term benefits to wilderness values by providing additional protection. The natural character and outstanding opportunities for primitive and unconfined recreation and solitude would be preserved. Preservation of wilderness values would in turn protect the identified supplemental values.

Designation of the WSA would have little effect on providing wilderness opportunities within a day's drive of major population centers and would not help balance the geographic distribution of wilderness in general. Except for potentially expanding the geographic distribution of an ecosystem type, the effects on providing a diversity of ecosystems/landforms on a regional or national basis cannot be determined at this time. The pinyon-juniper ecosystem is currently notwell-represented in the National Wilderness Preservation System, but numerous areas with wilderness potential, many larger in size than the Bull Gulch WSA, contain this vegetation type. However, the suitability or nonsuitability of most of these areas has not yet been determined. On a local basis, designation would provide an ecosystem/landform that is not currently represented in the local wilderness supply, and thus, also provide different wilderness recreation experience opportunities.

With the possible exception of impacts from mineral exploration and development, the WSA would be manageable as wilderness. There are no known powersite proposals within the 4 powersite withdrawals and it is doubtful that construction would occur within the 4 railroad rights-of-way. Because the probability of oil and gas exploration and development cannot be predicted, the impacts on manageability also cannot be predicted. However, the steep topography in most of the WSA would increase the costs of exploration and may limit potential exploration, at least initially, to the southern and extreme eastern portions of the WSA.

Visual Resources. In this option, the entire WSA would be managed as VRM Class I. The management objective for Class I allows primarily for natural ecological changes which would provide additional protection of the WSA's visual qualities, including the 6,714 acres that qualify for consideration as an ACEC.

Transportation. Although the 4 railroad rights-of-way would be within the designated area, there would be no impact since it is doubtful that construction would occur within the rights-of-way.

Utility and Communication Facilities. Any future applications for such facilities would be rejected.

Economic Impacts. The harvest of commercial timber and fuelwood and the associated increase of $29,000 in local income would be precluded but would not be economically significant. Income produced by livestock grazing and recreation would not be affected.

Consistency With Other Plans. Consistency would be the same as in the No Wilderness Option.

Partial Wilderness Option Impacts

In this option, approximately 10,415 acres of the WSA would be recommended as suitable and the remaining 4,585 acres would be recommended as nonsuitable (see Figure 10).

Soils. Because the most significant impacts to soils would occur as a result of timber harvesting, and most productive forest lands and woodlands would be in the nonsuitable area, impacts would be essentially the same as in the No Wilderness Option.

Water Quality. Impacts would be the same as in the No Wilderness Option.

Minerals. Impacts within the portion of the WSA recommended as suitable would be the same as in the All Wilderness Option, except only 10,415 acres would be affected by the withdrawal. Impacts within the nonsuitable portion (4,585 acres) would be the same as in the No Wilderness Option.

Aquatic Wildlife. Impacts would be the same as in the No Wilderness Option.

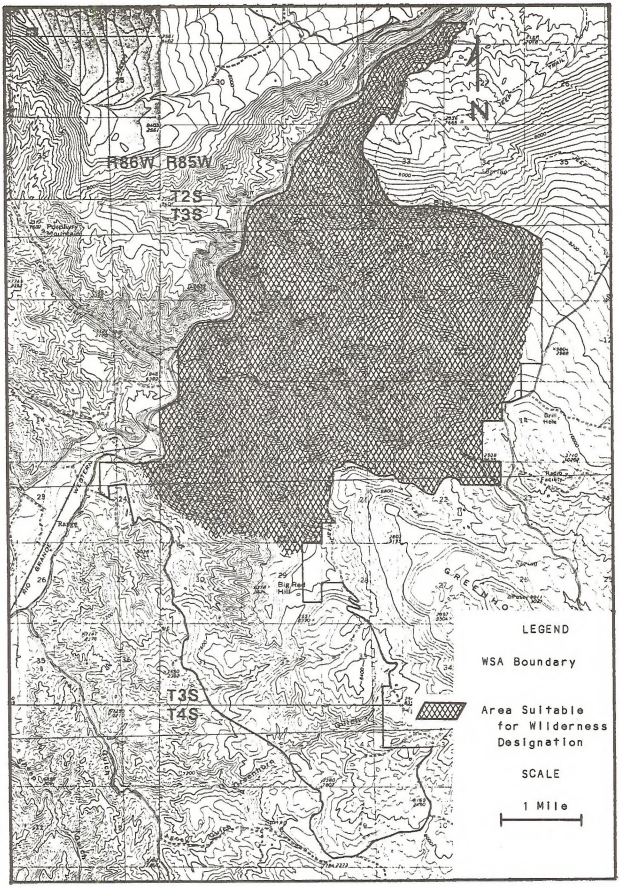
Terrestrial Wildlife. Impacts would be the same as in the No Wilderness Option.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option.

Vegetation. Vegetation would be benefited in the suitable portion of the WSA since removal or alteration would be prevented and natural ecological changes would continue to occur. Timber harvesting in the nonsuitable portion would cause losses of vegetation and changes in vegetative types.

FIGURE 10

BULL GULCH WILDERNESS STUDY AREA
PARTIAL WILDERNESS OPTION



Forestry. Approximately 137 acres and .65 MMBF of timber and 865 acres and 12,000 cords of fuelwood would be available for management and commercial harvesting. Approximately 578 acres and 1.65 MMBF of timber and 900 acres and 12,000 cords of fuelwood would not be available for management and commercial harvesting. However, the timber and fuelwood that would not be available would have a low management potential.

Recreation Resources. Impacts would be the same as in the All Wilderness Option except that only 10,415 acres would be closed to ORV use. Existing ORV use would not be adversely affected since the use is occurring in the nonsuitable portion that would be designated open to ORV use.

Cultural Resources. Wilderness designation would provide additional protection of 4 of the 5 recorded archeological sites within the WSA.

Wilderness Values. Wilderness designation of 10,415 acres would have short and long-term benefits to wilderness values by providing additional protection. The natural character and outstanding opportunities for primitive and unconfined recreation and solitude would be preserved. Preservation of wilderness values would in turn protect identified supplemental values that, with the exception of part of the deer and elk winter range, are concentrated in the suitable portion of the WSA. Impacts on diversity would essentially be the same as in the All Wilderness Option.

Non-designation of the 4,585 acres recommended as nonsuitable would have short and long term adverse impacts on wilderness values primarily resulting from loss of naturalness from timber harvesting.

Impacts on manageability would be essentially the same as in the All Wilderness Option except limited to the suitable portion. However, the southern and extreme eastern portions of the WSA that may be less limiting on oil and gas exploration in terms of topography are in the nonsuitable portion. Thus, the partial wilderness option may have fewer conflicts with wilderness management than would the entire WSA.

Visual Resources. In this option, the suitable portion of the WSA would be managed as VRM Class I which would provide additional protection of visual qualities, including the 6,714 acres that qualify for consideration as an ACEC. VRM classes in the nonsuitable portion would not be affected.

Transportation. Impacts would be the same as in the All Wilderness Option.

Utility and Communication Facilities. Any future applications for such facilities within the suitable portion would be rejected, but applications within the nonsuitable portion could be approved following Congress' decision.

Economic Impacts. The annual harvest of 8 MBF of commercial timber would increase local income by approximately $1,000. The annual harvest of 250 cords of fuelwood would support approximately $14,000 in local income. Neither effect would be economically significant. Income produced by livestock grazing and recreation would not be affected.

Consistency With Other Plans. Consistency would be the same as in the No Wilderness Option.

Alternative Recommendation and Rationale

The 10,415 acres identified in the Partial Wilderness Option (see Figure 10) are recommended as suitable for wilderness designation and the remainder of the WSA is recommended as nonsuitable. With the exception of potential, but unknown, conflicts with mineral exploration, conflicts with other resource values would be eliminated, and other resources, such as forestry, could be managed and developed. The majority of wilderness values would be preserved as would the majority of supplemental values including scenic, wildlife, and ecological values. Although manageability as wilderness over the long term is not absolutely assured because of potential mineral conflicts the partial wilderness option is considered to be more manageable than would the entire WSA.

Resource Protection Alternative

Except as described below, management of, and impacts on, all resources in each option would be the same as described in the Continuation of Current Management Alternative.

No Wilderness Option Impacts

Soils. Vegetation manipulation of 672 acres would cause an additional short-term (approximately 5 years) increase in erosion ranging from 524 to 4,840 tons per year. Erosion would decline rapidly following project completion, and in the long-term, could be less that the existing erosion rate because of increased ground cover.

Terrestrial Wildlife. In this alternative, the sage grouse winter range and strutting area (approximately 429 acres within the WSA) would be zoned as sensitive for utility and communication facilities which would eliminate or reduce the impacts of construction of such facilities.

Livestock Grazing. In this alternative, management of allotments would be the same as in the Continuation of Current Management Alternative. The total initial allocation would be 2,290 AUMs, an increase of 846 AUMs from the 5-year average, but 425 AUMs below total preference. Vegetation manipulations on approximately 672 acres in the portion of the WSA south of Alamo Creek would result in an additional increase of 282 AUMs in one allotment. This increase in AUMs would have a significant local beneficial impact by allowing the permittee to meet total preference goals.

Vegetation. Vegetation manipulations would cause an increased loss of vegetation and a change of vegetation type on 672 acres.

Recreation Resources. In this alternative, approximately 10,214 acres would be designated as recreation lands and closed to all ORV use. The designation, ORV closure, and sensitive

zoning classification for utility and communication facilities would protect the existing semi-primitive nonmotorized setting. Existing ORV use would not be affected since no use is known to occur within the closed area.

The upper Colorado River corridor would be designated as a special recreation management area. A primitive campsite would be developed at Jack Flats to prevent resource deterioration at this site caused by floatboating use. Increased legal access to the Bull Gulch area on the eastern side of the WSA would result in moderate increases in visitor use for all activities except floatboating and fishing.

Wilderness Values. The recreation lands designation and the ORV closure would help protect primitive recreation opportunities on 10,214 acres of the WSA. Designation of 6,714 acres as an ACEC and management under VRM Class I objectives would protect naturalness. The semi-primitive nonmotorized ROS class, the upper Colorado River corridor, and the sage grouse strutting area would be zoned as sensitive for utility and communication facilities. This classification would not eliminate, but might reduce, the impacts of any future proposals on naturalness on approximately 10,643 acres of the WSA. Vegetation manipulations would cause an increased loss of naturalness, however, the manipulations would occur in the same areas that would be affected by timber harvesting.

Visual Resources. In this alternative, approximately 6,714 acres would be designated as an ACEC and managed under Class I objectives which would provide additional protection of the area's visual qualities. The ACEC would be within the area zoned as sensitive for utility and communication facilities which would also help protect the visual qualities.

Utility and Communication Facilities. In this alternative, a zoning classification for such facilities would be implemented. The semi-primitive nonmotorized ROS class, the upper Colorado River corridor, and the sage grouse strutting area, a total of approximately 10,643 acres, would be zoned as sensitive. This classification identifies areas where restrictive stipulations would be necessary to mitigate impacts. The remainder of the WSA would be zoned as suitable for consideration of utility and communication facilities.

Economic Impacts. Initial livestock forage allocations would increase grazing use by 846 AUMs which would generate approximately $37,000 in new income in the area. Additional increases resulting from vegetation manipulations would add $12,000 to local income. These increases would be significant to individual permittees but would not be a significant addition to local income. Changes in recreation use would not be economically significant. The effects from timber and fuelwood harvesting would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Consistency With Other Plans. Consistency would be the same as in the Continuation of Current Management Alternative.

All Wilderness Option Impacts

Terrestrial Wildlife. The unsuitable zoning for utility and communication would protect the sage grouse strutting area by precluding the location of such facilities within the area.

Livestock Grazing. Management of allotments and the initial livestock allocations would be the same as in the No Wilderness Option of this alternative. Wilderness designation would preclude the vegetation manipulations on 672 acres within the WSA and may not allow the permittee to meet total preference goals. Portions of the allotment outside of the WSA may be suitable for manipulation; however, the acreage and potential increase in AUMs cannot be quantified at this time. Even without the manipulations, the increase in initial allocation of 846 AUMs per year in all of the allotments would have a significant local beneficial impact but would be 425 AUMs below total preference goals.

Recreation Resources. Preservation of the WSA as wilderness would cause the recreation lands designation to be duplicative of wilderness designation. Development of the primitive campsite at Jack Flats would not be affected since the Wilderness Management Policy allows improvements for resource protection. Increased legal access to the eastern side of Bull Gulch area would result in moderate increases in visitor use for all activities except fishing and floatboating. The unsuitable zoning for utility and communication facilities would provide additional protection of the semi-primitive nonmotorized ROS class and the portion of the upper Colorado River corridor within the WSA.

Visual Resources. The ACEC designation would not be affected by wilderness designation. The entire WSA, including the ACEC, would be managed under Class I objectives which would provide additional protection of the WSA's visual qualities. The unsuitable zoning for utility and communication facilities would also help protect visual qualities.

Utility and Communication Facilities. The entire WSA would be zoned as unsuitable for such facilities and any future proposals would be rejected.

Economic Impacts. Initial livestock forage allocations would increase grazing use by 846 AUMs which would generate approximately $37,000 in new income in the area. Additional increases from vegetation manipulations may be prevented which would preclude an additional $12,000 in local income. Both effects would be significant to individual permittees but would not be significant to the local economy. Changes in recreation use would not be economically significant. The harvest of commercial timber and the associated increase of $29,000 in local income would be precluded but would not be economically significant.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. Even though resource conflicts would exist and manageability as wilderness is not absolutely assured because of potential mineral conflicts, the recommendation is consistent with the objective of

this alternative which emphasizes the protection of natural and cultural values, especially the protection of fragile and unique resource values. Wilderness designation would provide the greatest protection of wilderness values, unique scenic values, and ecological, wildlife, recreational, and cultural values.

Economic Development Alternative

Management of all resources within the WSA would be the same as described in the Resource Protection Alternative. Therefore, impacts of the No Wilderness Option and the All Wilderness Option in this alternative would be the same as in the Resource Protection Alternative. However, because of the objective of this alternative, a partial wilderness option was developed. This option would be the same as the Partial Wilderness Option in the Continuation of Current Management Alternative (see Figure 10) and, except as described below, management of, and impacts on, all resources would be the same as in that alternative.

Partial Wilderness Option Impacts

Soils. Impacts would be the same as in the No Wilderness Option in the Resource Protection Alternative.

Terrestrial Wildlife. Impacts would be the same as in the No Wilderness Option in the Resource Protection Alternative.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option in the Resource Protection Alternative.

Vegetation. Vegetation would be benefited in the suitable portion of the WSA since removal or alteration would be prevented and natural ecological changes would continue to occur. Timber harvesting and vegetation manipulations in the nonsuitable portion would cause losses of vegetation and changes in vegetation types.

Recreation Resources. Impacts would be the same as in the All Wilderness Option in the Resource Protection Alternative except that only 10,415 acres would be zoned as unsuitable for utility and communication facilities and closed to ORV use. Existing ORV use would not be affected since the use is occurring in the nonsuitable portion that would be designated open to ORV use.

Wilderness Values. Impacts would be the same as in the Partial Wilderness Option in the Continuation of Current Management Alternative except there would be an increased loss of naturalness in the nonsuitable portion from vegetation manipulations.

Visual Resources. The ACEC designation would not be affected by wilderness designation of the suitable portion of the WSA, but management under VRM Class I objectives and the unsuitable zoning for utility and communication facilities would protect the ACEC's visual qualities.

Utility and Communication Facilities. The suitable portion of the WSA (10,415 acres) would be zoned as unsuitable for such facilities and any future proposals would be rejected. Approximately 429 acres in the southeastern portion of the unit would be zoned as sensitive to protect the sage grouse strutting area. The remainder of the WSA would be zoned as suitable for consideration of utility and communication facilities.

Economic Impacts. Impacts on livestock grazing and recreation would be the same as in the No Wilderness Option in this alternative. Impacts on timber and fuelwood harvesting would be the same as in the Partial Wilderness Option in the Continuation of Current Management Alternative.

Alternative Recommendation and Rationale

The 10,415 acres identified in the Partial Wilderness Option (see Figure 10) are recommended as suitable for wilderness designation and the remainder of the WSA is recommended as nonsuitable. The rationale is the same as in the Continuation of Current Management Alternative.

Preferred Alternative

Except as described below, management of, and impacts on, all resources would be the same as described in the Continuation of Current Management Alternative.

No Wilderness Option Impacts

Terrestrial Wildlife. Impacts would be the same as in the No Wilderness Option in the Resource Protection Alternative.

Livestock Grazing. In this alternative, management of all of the allotments would be the same as in the Continuation of Current Management Alternative. The total final allocation would be 2,187 AUMs, an increase of 743 AUMs from the 5-year average. This increase would have a significant local beneficial impact, but the increase would still be 143 AUMs below active preference goals.

Recreation Resources. Impacts would be the same as in No Wilderness Option in the Resource Protection Alternative except the recreation lands would not be designated; however, recreation management in this area would be emphasized. The area would be zoned as unsuitable for utility and communication facilities and closed to ORV use which would protect the semi-primitive nonmotorized setting.

Wilderness Values. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative except the unsuitable zoning for utilities and communication facilities would help protect naturalness on 10,214 acres of the WSA.

Visual Resources. In this alternative, 6,714 acres would be designated as an ACEC and would continue to be managed under VRM Class II objectives which would provide protection of the visual qualities. The unsuitable zoning for utility and communication facilities would provide additional protection of visual qualities.

Utility and Communication Facilities. In this alternative, 10,214 acres would be zoned as unsuitable for utility and communication facilities and any future proposals for such facilities would be rejected. The sage grouse strutting area (429 acres) would be zoned as sensitive and the remainder of the WSA would be zoned as suitable for consideration of utility and communication facilities.

Economic Impacts. Final livestock forage allocations would increase grazing use by 743 AUMs which would generate approximately $32,000 in new income in the area. This increase would be significant to individual permittees but would not be a significant addition to local income.

All Wilderness Option Impacts

Although management of various resource programs would change in this alternative as described in the No Wilderness Option, the impacts on all resources would be the same as in the All Wilderness Option in the Resource Protection Alternative, except as described below.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option of this alternative.

Recreation Resources. Impacts would be the same as in the All Wilderness Option in the Resource Protection Alternative except that the recreation lands designation is not included in this alternative.

Economic Impacts. Impacts would be the same as in the All Wilderness Option in the Resource Protection Alternative except for the impacts from livestock grazing that would be the same as in the No Wilderness Option of this alternative.

Partial Wilderness Option Impacts

Although management of various resource programs would change in this alternative as described in the No Wilderness Option, the impacts on all resources would be the same as in the Partial Wilderness Option in the Economic Development Alternative, except as described below.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option of this alternative.

Recreation Resources. Impacts would be the same as in the Partial Wilderness Option in the Economic Development Alternative except that the recreation lands designation is not included in this alternative.

Economic Impacts. Impacts would be the same as in the Partial Wilderness Option in the Economic Development Alternative except for the impacts from livestock grazing that would be the same as in the No Wilderness Option of this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as nonsuitable for wilderness designation. The restrictions on other resource management would provide protection of naturalness, solitude, and primitive recreation opportunities and supplemental scenic, wildlife, and recreational values on essentially the same area that was recommended as suitable in the Continuation of Current Management and Economic Development Alternatives (Partial Wilderness Option) and are thought to be more appropriate than management as wilderness. Non-designation of the WSA would not significantly affect diversity in the National Wilderness Preservation System, except on a local basis where a different landform/ecosystem would be represented in the local wilderness supply, and thus, provide different primitive recreation experience opportunities. However, the restrictive management in this alternative will maintain these primitive recreation opportunities. Conflicts with all other resource values would be eliminated and other resources, such as forestry, could also be managed and developed. This recommendation would also prevent future wilderness manageability problems that could result from potential future mineral exploration.

Comparative Analysis of Alternatives

The Resource Protection Alternative would provide the greatest benefit to wilderness values in the WSA since the entire WSA would be recommended as suitable for wilderness designation, thus preserving all wilderness values and protecting related supplemental values. The Continuation of Current Management and Economic Development Alternatives would preserve wilderness values on 10,415 acres and would protect the majority of the supplemental values which are concentrated in the area recommended as suitable. In both alternatives, wilderness potential would be foregone on 4,585 acres, primarily as a result of losses of naturalness caused by other resource activities. Even though none of the WSA would be recommended as suitable in the Preferred Alternative, the beneficial and adverse impacts on wilderness and other resource values would be essentially the same as in the Continuation of Current Management and Economic Development Alternatives.

Forestry would be adversely affected in the Resource Protection Alternative since no management or harvesting would occur but would not be significantly affected in the other three alternatives since productive forest lands and woodlands would be available for management and harvesting. Because timber harvesting would increase forage in crucial deer and elk winter range, wildlife would benefit the most in all alternatives except the Resource Protection Alternative.

The only effect wilderness designation or non-designation would have on livestock grazing would be whether or not vegetation manipulations proposed in the Resource Protection and Economic Development Alternatives could occur within the WSA. In the Resource Protection Alternative, these manipulations would not be allowed, thus, preventing a potential increase of 282 AUMs per year unless the manipulations could occur outside of the WSA.

Because of management proposed by recreation resources and visual resources, neither wilderness designation or non-designation would have a great impact on these two resources. However, wilderness designation would provide some additional protection of scenic and primitive recreation values in the Continuation of Current Management, Resource Protection, and Economic Development Alternatives.

None of the alternatives would have significant beneficial or adverse impacts on the local economy.

Public Comments

Twelve public comments were received during the intensive inventory, seven favoring and five opposed to WSA identification. Specific items addressed by those favoring WSA identification were the lack of notoriety leaves the area unmarked by man; the unit has been affected primarily by nature; the northeast area has two-track ways with minor impact which are revegetating naturally; the unit is rugged and inaccessible; the unit is large and the terrain and vegetation have extreme variation and hide visitors from each other; the unit provides rich solitude; recreation opportunities include rafting, photography, viewing, hiking, camping, fishing, hunting, and skiing; supplemental values are the 3,000 foot exposure of the cliffs along the Colorado River, the verdant vegetation, diverse ecosystems, the presence of prairie falcons, bald eagles, and possibly mountain lion; winter range for deer and elk; and the view of the Flat Tops. Those comments opposed to WSA identification stated the unit contains numerous jeep roads and stock water developments; no outstanding opportunities exist in the unit because of its narrow configuration, the sights, sounds, and smells of the railroad, and flights over the unit; the area is important for livestock use and oil and gas and mineral development; there is a potential for fuelwood harvesting; wilderness would preclude opportunities for improvement of habitat for elk and deer winter range; and the unit contributes to the economic and social stability of Eagle County and should remain non-wilderness.

One additional public comment concerning the WSA was received following the intensive inventory. This comment supported wilderness designation because the area is unique due to its geological features, vegetative diversity, and wildlife abundance, and because designation will allow or enhance more resources than it will restrict.

Public workshops were held in May, 1982 to obtain comments on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. Seventeen comments, mostly general in nature, concerning the Bull Gulch WSA were received. Twelve comments supported designation of the entire WSA, four comments supported the partial wilderness option, and one comment opposed wilderness designation of the WSA. One specific comment supported the WSA as wilderness because it is different from other wilderness in this vicinity and another comment supported designation but questioned the exclusion of the southern portion in the partial wilderness option.

The Eagle County Commission was also briefed on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. The commission had no strong feelings about the WSA, but generally felt it should be identified nonsuitable to provide for more diversity of use and were concerned about the management of small wildernesses.

Affected Environment

Setting

This WSA (11,940 acres) is located approximately 6 miles north of Eagle (see Figure 1). The topography varies from gently rolling hills at the lower elevations to the rocky cliffs of Castle Peak. Elevations range from 8,400 feet on the northern boundary to 11,275 feet on Castle Peak. Figure 11 is a map of the WSA.

Soils

The majority of the WSA consists of the Jerry-Cochetopa-Lieg soil association. These soils are deep and well drained and are in the moderate erosion condition class (5 tons per acre per year). The southwestern and southeastern corners of the WSA consist of the Dollard-Pinelli-Unnamed Rock Outcrop-Shale soil association. These soils are shallow to deep and well drained. The erosion condition class of the southeastern corner is moderate but the class of the southwestern corner is moderate to high (5 to 8 tons per acre per year).

Water Resources

The northwestern half of the WSA drains into Big Alkali Creek which is a tributary of the Colorado River. The southeastern half of the WSA drains into the Eagle River. Four perennial streams (Castle, Norman, Catamount, and Milk Creeks), 5 lakes (the Castle Creek Ponds, Picture Lake, and Schlegel Lake), and numerous other small ponds and springs are within the WSA.

Water quality information is not available for the WSA. The WSA contains over 10,000 acres of high water yielding vegetation types including 9,090 acres of mixed conifer forest, 360 acres of aspen, and 650 acres of mountain brush.

Minerals

No locatable or saleable minerals are known to exist within the WSA and no mining claims are located within the WSA. The only potential leaseable minerals are oil and gas. Oil and gas is undiscovered and there are no known geologic structures, but because thick sediments exist, the WSA has been identified as being prospectively valuable. The entire WSA has been leased for oil and gas (see Figure 12). Leases on approximately 9,698 acres were issued prior to passage of the Federal Land Policy and Management Act of 1976 (FLPMA) and leases on the remaining 2,242 were issued after passage of the act. Geophysical exploration has occurred in the general vicinity of the WSA and a well was drilled on private land just west of the WSA but was nonproductive. No strategic or critical materials listed in the Stockpile Report to Congress are known to exist within the WSA.

Aquatic Wildlife

Castle Creek is a trout fishery but has been rated as poor. Norman and Catamount Creeks have been identified as potential fisheries.

FIGURE 11

CASTLE PEAK WILDERNESS STUDY AREA

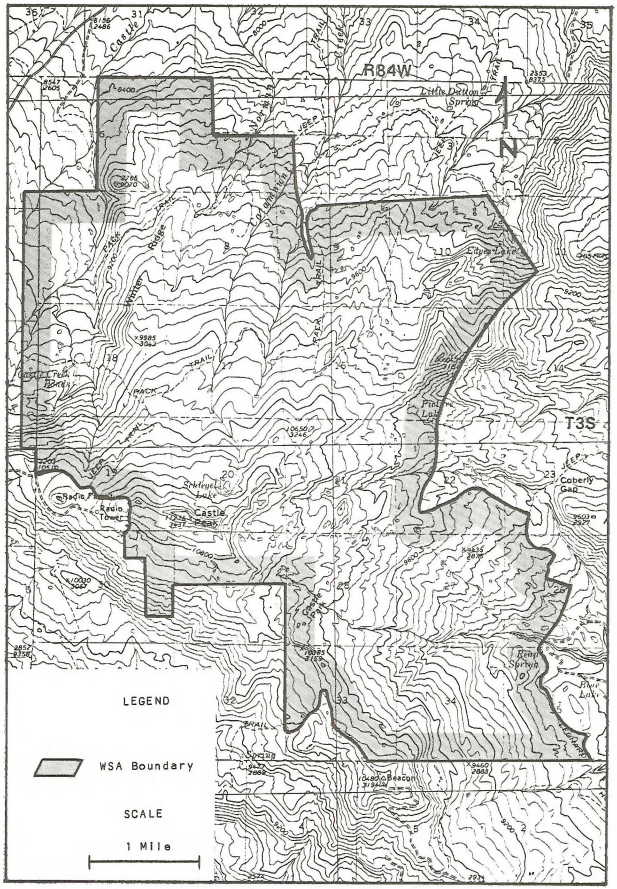
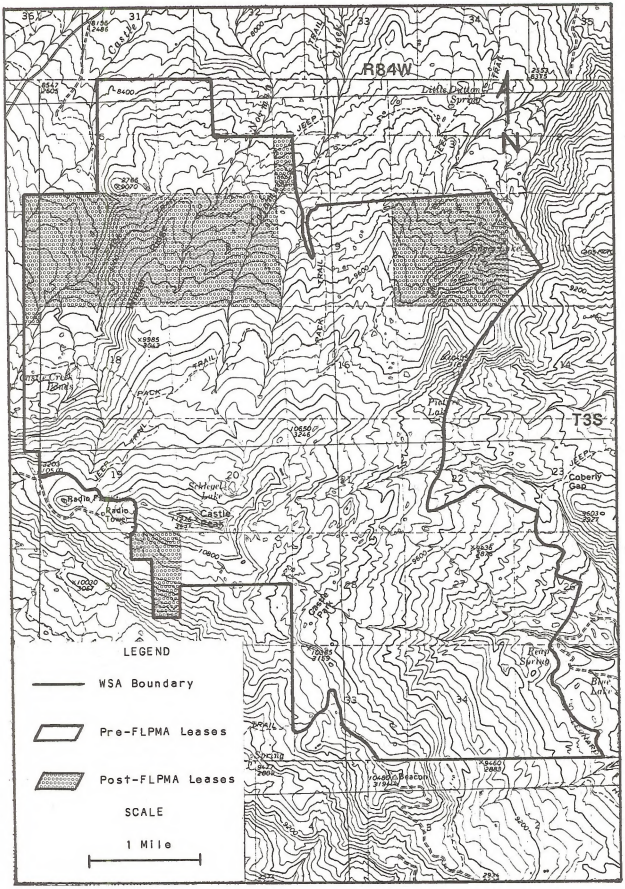


FIGURE 12

CASTLE PEAK WILDERNESS STUDY AREA
OIL AND GAS LEASES



Terrestrial Wildlife

Deer, elk, mountain lion, and bear, as well as numerous small game and nongame species exist in the area. The WSA provides summer range for both deer and elk and also calving areas for elk.

Livestock Grazing

Portions of 6 grazing allotments exist within the WSA. The total active use (5 year average) for these allotments is 4,247 AUMs with seasons of use between June 1 and November 15.

Range improvements within the WSA include 5 fences, 2 irrigation ditches, and a spring development.

Vegetation

Vegetation within the WSA consists primarily of the Englemann spruce-subalpine fir and aspen forest types interspersed with grassy meadows. The spruce-fir forest contains considerable dead standing trees killed by a spruce beetle infestation in the 1930's. The amount of dead material has created a severe fire hazard. The northwestern corner of the WSA contains the semi-desert shrub vegetation type and the mountain shrub-type occurs in the southeastern corner.

Forestry

Productive forest lands occur on the majority of the WSA and include 5,450 acres with a total volume of 45.6 million board feet (MMBF) of spruce-fir, 3,640 acres and 10.7 MMBF of Douglas fir, and 360 acres and 2.7 MMBF of aspen. Included within the spruce-fir forest type are the standing dead trees killed by the spruce beetle infestation. The Castle Peak area is considered to have the greatest potential for management of the spruce-fir forest type in the resource area. Aspen is not considered to be a commercial forest species at this time.

Recreation Resources

No complete recreation use data for the WSA is available, however, 1979 visitor use estimates indicate approximately 60 fishing visits, 20 camping/hiking visits, 140 off-road vehicle visits, 1,375 big game hunting visits, and 450 small game hunting visits per year.

Recreational features and attractions identified in the recreation inventory include high quality scenery and panoramic views from the area of the Gore, Sawatch, and West Elk mountain ranges and the Colorado and Eagle River Valleys, and wildlife hunting and viewing opportunities.

The Recreation Opportunity Spectrum (ROS) inventory identified two ROS setting opportunities within the WSA. Approximately 6,545 acres of the WSA have been identified as the semi-primitive nonmotorized setting. This setting is scarce on public lands in the resource area and information on visitor preferences for settings associated with various activities indicate a high preference for this setting. The remainder of the WSA has been identified as the semi-primitive motorized setting. Visitor preferences for settings for the activities occurring within the WSA are almost equal for the semi-primitive motorized setting as for the semi-primitive nonmotorized setting.

Cultural Resources

One historical site has been recorded within the WSA. This site is the remains of an old cabin of unknown origin.

Paleontological Resources

No paleontological resources have been identified within the resource area.

Wilderness Values

Mandatory Wilderness Characteristics.

Size. The WSA contains 11,940 acres of public land administered by the BLM which meets the size criteria in the Wilderness Inventory Handbook. The WSA generally has a blocked configuration with an extension to the south. The blocked portion of the WSA is approximately 3 miles wide and 5 miles long and the extension is about 2 miles long and 2-1/2 miles wide.

Naturalness. The imprints of man which exist within the WSA have been determined to be substantially unnoticeable. The imprints of man which exist within the WSA include: 6 ways, 5 fences, 2 irrigation ditches, a network of pack trails, a rain gauge, and a snow measuring course.

Two ways enter the WSA from the northern boundary and both extend approximately 1 mile into the WSA. Both of these ways are two-tire tracks with vegetation growing between the tracks. The ways pass through dispersed aspen stands and are screened by vegetation and the area's rolling topography. Both ways have a minor impact on the WSA's naturalness. Two ways also enter the WSA from the western boundary. One extends 1/2 mile, the other about 1-1/2 miles into the WSA. These ways both pass through dense spruce-fir timber stands which provide screening and minimize the effects of the imprints. The longer of the two ways shows little evidence of use and has begun to rehabilitate naturally. A 1/2 mile long way with several short spurs enter the WSA from the southern boundary. This way passes through a densely forested section of the WSA and has a minor impact on naturalness. Two ways enter the WSA from the eastern boundary. One extends 1/2 mile and the other about 1-1/2 miles into the WSA. Both of these ways are located in dense aspen stands and have a minor effect on naturalness because of the effective vegetative screening.

Fences essentially parallel the WSA's western boundary. This line consists of two sections of four-strand barbed-wire fence. The fences pass through an area of the WSA with dense timber stands and rolling topography. The topographic and vegetative screening in combination with the fences' proximity (less than 1/4 mile) to the boundary diminish the effects on naturalness. Four-strand fences dissect the center of the WSA. A fence enters from the central eastern boundary and runs west to the center of the WSA and then runs north and south, dividing the WSA. Another section of fence runs east and west across a 2 mile segment of the northern portion of the WSA. All of these fences pass through dense aspen or spruce-fir forested areas which provides effective concealment of the fences. The screening and numerous downed portions of the fences reduce the imprint of man's work to a substantially unnoticeable level. A 1/2 mile section of relatively recently constructed fence runs along a ridgeline, above Picture Lake, near the WSA's eastern boundary. Because this line is on a ridge it is obviously visible, but the short length reduces the impact of the visibility. The fence has a moderate impact on the naturalness of the immediate area, but is relatively unnoticeable when considered in context of the WSA's entirety. Fences are imprints of man which can be allowed in a wilderness (see Wilderness Inventory Handbook) and, thus, in a wilderness study area.

Two 1/2 mile irrigation ditches and a spring development exist near the eastern boundary. These water developments have revegetated sufficiently to be screened from view until one is directly upon them, and therefore have a very minor effect on naturalness.

A network of pack trails are located in the northwestern half of the WSA. These trails, which might have been used by vehicles some time ago, are presently covered with blow-down timber and pass through a densely forested area which had been infested by spruce beetle. As a result of the infestation, the timber stands contain a large amount of dead and downed timber, standing dead trees, and live spruce. The pack trails remain substantially unnoticeable as a result of the screening provided by the tangled timber stands. House Report 95-540 cited trails as an imprint of man which can be allowed in a designated wilderness and, thus, in a wilderness study area.

The rain gauge and snow measuring course have no effect on naturalness and are also cited in House Report 95-540 as being allowable in a wilderness.

The dense spruce and aspen stands in combination with the rolling topography in the WSA play an important role in screening the existing imprints of man. In addition to being well-screened, the existing imprints are distributed in a manner which further reduces the overall effects of the imprints and enhances the primeval character of the WSA. However, this distribution increases the probability of a visitor encountering the imprint of man. Because of the minor effect of the imprints, a visitor will perceive the WSA as being primarily affected by the forces of nature, but will be reminded that man is, or has been, a frequent visitor. The types of imprints which exist (ways, fences, trails, and irrigation ditches) have not had a significant effect on the natural physical surface or life communities of the WSA.

Natural rehabilitation processes in the WSA are capable of returning these minor imprints of man to a natural condition relatively rapidly. The WSA receives aproximatey 25 to 30 inches of precipitation annually and the aspen-spruce forest intermixed with meadows is an ecosystem which generates a relatively large amount of invader plant species. Because of the minor impacts of the imprints and the rehabilitation capability, separation of imprints from the WSA is not necessary.

The ways which exist in the WSA are capable of returning to a completely natural condition through revegetation over a period of time if vehicular travel were prohibited. None of the ways have eroded seriously or exist on slopes which would inhibit the natural revegetative processes. Since the two irrigation ditches within the WSA are currently overgrown with vegetation and are less than two feet wide, they will not require rehabilitation to reduce their impact on naturalness. Since trails are allowable in wildernesses, they do not need to be rehabilitated. All, or a portion, of the fences could be removed by hand labor. However, the BLM's Wilderness Management Policy and House Report 96-617 state that range improvements in existence at the time of wilderness designation can be allowed to remain in place and be maintained.

Previous to a discussion of the influences of outside sights and sounds and their influence on the naturalness of the WSA, a reference should be made to the context in which they will be evaluated. Interpretation of the congressional report on the 1978 Endangered American Wilderness Act indicates that outside sights and sounds can have positive influences on wilderness values or can outweight the benefits of wilderness designation.

The majority of the northern and eastern and portions of the southern and western boundaries of the WSA are drawn along imprints of man which were determined to have a noticeable effect on naturalness. The negative effects those imprints have on perceptions of naturalness within the WSA is reduced by vegetative and topographic screening, especially from the more interior

portions of the WSA. The antennas from the communications site along the southwestern boundary have the most significant effect, being visible from a large portion of the WSA. The lineal form of the antennas does not contrast with the surrounding lineal spruce forest, but the silver color and reflectiveness do contrast with natural surroundings. Planning presently has begun to improve the communication site which would involve relocation and design of buildings and antennas to reduce visual impacts.

The WSA is an elevated topographic feature which allows distant viewing beyond the exterior boundaries. The WSA is circled by major transportation routes with Interstate-70 on the south, State Highway 131 on the east, and a county road on the west and north, all within 5 to 7 miles of the WSA boundaries. A number of lesser used roads exist between the major transportation corridors and the WSA's boundaries. A major power line parallels the northern boundary approximately 2 miles in the distance.

Outside sights of man's work are noticeable from the perimeter of the WSA. Portions of the interior of the WSA have sufficient screening to eliminate the effects of man's work on the surrounding areas. The distance of the imprints from the WSA also helps reduce their effect on the naturalness of the WSA. Furthermore, the change in elevation between the WSA and the imprints provides a perception of a topographical barrier between the WSA and the imprints and enhances the natural qualities of the WSA.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation. The WSA's size, blocked configuration, and vegetative and topographic screening combine to provide outstanding opportunities for solitude. The WSA has a blocked configuration which averages 3 miles in width and 5 miles in length. This large area increases the chances that an individual will feel isolated from others and undisturbed by the sights and sounds of man within and outside of the WSA. The dense spruce forest, aspen stands, meadows, and numerous ponds create vegetative barriers from the sights and sounds of other individuals and enables a visitor to find a secluded spot. The rolling topography and vertical rock slopes provide additional screening and a feeling of spaciousness. The effective screening allows for a relatively high recreation carrying capacity, while maintaining excellent opportunities for seclusion.

The effective screening also reduces the impacts of man's activities which occur outside of the WSA. Because numerous ways exist near the boundaries, periodically motorized vehicles may be seen or heard from the perimeter of the WSA. However, ample opportunities exist to find places which are vegetatively or topographically screened from the sights and sounds of periodic traffic on those ways. The distance from other activities of man eliminates audible impacts and reduces visual impacts as they are less distinguishable in the background scenery. Ample opportunities exist to find a spot screened from the impacts of outside sights of man's activities which occur distant from the WSA. The change in elevation between the imprints and the WSA provides a perception of a topographical barrier between the WSA and the imprints which enhances the feeling of solitude within the WSA. In addition, several prominent snow-capped mountain ranges and peaks are visible in the distance. These outstanding distant views further enhance the feeling of solitude within the WSA.

Several public comments received during the intensive inventory indicated that the sights and sound of aircraft passing over the WSA detracted from the quality of solitude.

The Eagle County airport is located approximately 7 miles south of the WSA. The airport is designed to handle only private smaller type aircraft and is not anticipated to become a terminal for larger commercial jets in the future. Some increase in air traffic is expected in the future as population growth increases in the Eagle River Valley in response to ski area development. Presently, the majority of air traffic uses approaches from the east and west. Only a very limited number of aircraft pass over the WSA in a north or south approach to the

airport. These aircraft are required to remain or climb to an elevation which will ensure safe passage over the 11,275 foot elevation of Castle Peak. The limited amount of aircraft, types of aircraft, and elevation limit the effect of passing aircraft on solitude within the WSA to an insignificant level.

The varied topography offers outstanding opportunities for solitude. The dense timber and vegetation covering most of the WSA provide an effective barrier to other sights and sounds within or outside the WSA. The large size and blocked configuration further enhances opportunities for solitude. The combination of screening, limited influences of man's activities outside of the WSA, and panoramic views provide numerous opportunities to find secluded spots and feelings of isolation. The quality of solitude within the WSA is extremely high.

The resource base of the WSA is very conducive to providing a large number of opportunities for primitive and unconfined types of recreation. The diversity of vegetation ranges from dense spruce forests to park-like aspen stands, both spotted with small mountain meadows, lakes, ponds, and streams. The topography consists mainly of rolling hills with some steep rock cliffs in the southwestern corner and an elevation range of approximately 8,400 to over 11,000 feet. The diversity of topography, water resources, and vegetation provides habitat for numerous wildlife species. The elevational variety accommodates seasonal changes in vegetation types and abundances of wildlife in addition to opportunities for winter sports activities provided for by abundant snow.

This diversity of ecosystems provides for a large variety of primitive and unconfined recreational activities including hiking, backpacking, hunting, horseback riding, photography, fishing, nature study, and sightseeing.

The network of trails, although not maintained, in the northwestern half of the WSA provides transportation routes which enhance the recreation opportunities.

The WSA does have a very high quality of outstanding opportunities for primitive and unconfined types of recreation as a result of the diversity in vegetation and topography, the existence of numerous water features, and the number of activities which can be engaged in by visitors.

Special Features

The unusual basalt geological formation of Castle Peak (11,275 feet) is the most prominant geologic feature within the WSA and in the Eagle River Valley, being visible for a 10 mile radius. The peak differs substantially from the geology and scenery of the surrounding locale and is an important feature in the scenic quality of the area, both from within and outside of the WSA.

The diversity of topography and vegetation provides the WSA with outstanding scenic and ecological values. Most of the WSA has been rated as high quality (Class A) scenery in the Visual Resource Management analysis. Although these values are not unique to the region, they do enhance the quality of the wilderness values. The relatively unaltered ecosystems and scenery of the WSA contrast with the surroundings where man's influence is more noticeable and thus highlights the primeval character of the WSA. The vegetation also provides excellent habitat for deer and elk.

The WSA's proximity to the population centers of the Eagle Valley and Interstate-70 will place the wilderness values within reach of local residents and will facilitate transportation to the area by more distant populations. The scenic values of the area can also be enjoyed by travelers passing along the transportation corridors which surround the WSA.

Diversity in the National Wilderness Preservation System

The WSA is within the southern Rocky Mountain physiographic province and contains the potential natural vegetation types defined by Kuchler as the western spruce-fir forest and sagebrush steppe. The western spruce-fir forest is the dominant vegetative type in existing wildernesses administered by the U.S. Forest Service in the Glenwood Springs Resource Area and Colorado. This vegetation type is also prevalent in existing wildernesses in the northern and middle Rocky Mountain physiographic regions.

Standard Metropolitan Statistical Areas (SMSAs) within a day's driving time (5 hours) of the Glenwood Springs Resource Area are shown in Table 1. Existing wildernesses and other wilderness study areas within a day's driving time of the SMSAs are listed in Appendix 2.

Visual Resources

Two tentative visual resource management (VRM) classes have been identified within the WSA. Approximately 10,513 acres are in Class II which allows for changes in the characteristic landscape, however, such changes should not be evident. The remaining 1,427 acres are Class IV in which changes may subordinate the original landscape character.

The majority of the WSA was identified as high quality (Class A) scenery in the VRM inventory. Portions of the WSA along the northern, eastern, and southern boundaries were identified as medium (Class B) scenery. Visual sensitivity for the WSA is moderate to high. Most of the WSA is in the background or seldom seen distances zones except for the eastern portion that is in the foreground distance zone.

Land Tenure

The entire WSA is public land administered by the BLM, including all mineral rights. No withdrawals or easements exist within the WSA.

Transportation

No rights-of-way exist within the WSA. Legal access to the WSA is presently restricted to the eastern portion of the WSA.

Utility and Communication Facilities

No utility or communication facilities exist within the WSA and there are no known proposals.

Air Quality

The entire WSA has been given a Class II air quality classification which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. Air quality is within the applicable Class II State and National Ambient Air Quality Standards.

Social and Economic Conditions

Livestock grazing and recreation are the only economic activities presently occurring within the WSA. All or portions of 6 grazing allotments with a 5-year average use of 4,247 AUMs are within the WSA. This amount of use represents about 11 percent of all livestock grazing on public lands in the resource area and generates over $185,000 annually in local personal income. Over 2,000 recreation visits annually (90 percent of which are for hunting) generate approximately $105,000 in local expenditures. These expenditures support 8 man-years of employment and over $50,000 in personal income.

No timber production takes place but over 56 MMBF of commercial species are within the WSA which would permit an average annual production of 469 MBF.

No mineral production takes place and no economic supplies of minerals have been identified.

A division exists among residents of the resource area on the concept of wilderness. An apparent majority is opposed to additional wilderness designation. Support for additional wilderness designation tends to come from younger residents, more recent arrivals to the area, and residents in the resort areas.

A study of wilderness in Colorado (Walsh 1981) estimated that 54 percent of Colorado residents would prefer to have more wilderness designated than existed in 1980 (about 1.2 million acres), and 46 would prefer twice as much wilderness (5 million acres) than existed after passage of the Colorado Wilderness Bill. This study also shows that many of the reasons for valuing wilderness are for indirect uses or appreciation of the intrinsic values of wilderness.

Seventeen public comments were received during the intensive inventory, ten favoring, and six opposed to WSA identification, and one comment did not make a recommendation. The final intensive inventory decision to identify the area as a WSA was appealed to the Interior Board of Land Appeals (see Public Comments section for more information).

Environmental Consequences

Continuation of Current Management Alternative

No Wilderness Option Impacts

Soils. The most significant impact to soils would occur as a result of timber harvesting. Based on the total acreage of productive forest lands within the WSA, timber harvesting could increase erosion by 1,258 tons/year. This increase in erosion would be a short-term impact and would not be noticeable in 3 to 5 years following harvesting. Additional adverse impacts to soils could also occur as a result of potential mineral exploration, but the impacts cannot be determined until the extent of exploration would be known.

Water Quality. Increased surface water sediment load and salinity could occur as a result of erosion associated with timber harvesting. The impact would vary depending on the locations of sale areas. Castle, Norman, and Catamount Creeks would be affected since most of the

commercial forest lands are within the drainages of these creeks, but the impacts to each particular stream cannot be quantified until the sale locations are known. However, the impact on the Colorado River would be insignificant.

Minerals. In this option, the WSA would remain open to mineral location. However, based on the identified absence of locatable or saleable minerals, it is very doubtful that any exploration or development of these minerals would occur.

Oil and gas is undiscovered and can be assumed to be subeconomic. However, the extent of mineral leasing within the WSA and exploration near the WSA indicates significant interest in the area. Therefore, the probability of oil and gas exploration cannot be predicted.

Aquatic Wildlife. In this alternative, no actions would be implemented to improve the fishing in Castle Creek or to develop the potential fisheries in Norman and Catamount Creeks. Decreases in water quality caused by increased siltation from timber harvesting and potential mineral exploration could adversely affect aquatic habitat and aquatic wildlife in Castle Creek, but the impacts cannot be quantified until the locations of sale areas are known.

Terrestrial Wildlife. All wildlife species could be adversely affected in the short term by timber harvesting and potential mineral exploration as a result of habitat disruption and stress caused by human activity and noise; however, the overall impact would be low. Elk calving areas would not be significantly affected by timber harvesting since timber harvesting would be prohibited between May 1 and June 15.

Livestock Grazing. In this alternative, 3 allotments would be intensively managed and 3 allotments would be less intensively managed. Additional range improvements, including fences, springs, and reservoirs, could be implemented following completion of allotment management plans. Existing AUMs (5 year average) and seasons of use would remain in effect.

Vegetation. Timber harvesting would have both beneficial and adverse impacts. Timber harvesting would cause a loss of vegetation, but would also reduce the severe fire hazard by reducing the fuel load. Potential mineral exploration and development could also destroy vegetation in the areas of operation. Reclamation might not completely mitigate losses of vegtetation, with a net loss of vegetation or change in vegetation type.

Forestry. In this alternative, productive forest lands on slopes less than 40 percent would be managed and 5,450 acres and 45.6 MMBF of spruce-fir and 3,640 acres and 10.7 MMBF of Douglas fir would be suitable for management and available for commercial harvesting. On a sustained yield basis, approximately 469 thousand board feet (MBF) could be harvested annually.

Recreational Resources. Recreational use would be expected to continue at current levels. Hunting could be adversely affected by potential timber harvesting and potential mineral exploration, especially if activities would occur during hunting seasons and reduce the number of animals in the area. Fishing could also be adversely affected because of degradation of aquatic habitat, but the overall affect would be low because of the existing poor quality of the fisheries and low amounts of use.

Existing ROS settings would be adopted as ROS classes. However, no specific actions would be implemented to protect settings, specifically the semi-primitive nonmotorized setting. Timber harvesting and potential mineral exploration could cause a change from semi-primitive nonmotorized to semi-primitive motorized. Such a change would have moderate adverse impacts based on the scarcity of semi-primitive nonmotorized settings on public lands in the resource area. However, the overall impact would be low because setting preferences for the major recreational activities that are occurring within the WSA are almost equal for the semi-primitive nonmotorized and semi-primitive motorized settings.

In this alternative, the entire WSA would remain open to off-road vehicle (ORV) use. Existing ORV users would benefit from this open designation, but such use would conflict with management objectives for the semi-primitive nonmotorized ROS class, and conflicts between nonmotorized and motorized activities could occur.

The lack of additional legal access to the WSA would not satisfy the desires of the Colorado Division of Wildlife and hunters for additional motorized access to the area.

Wilderness Values. Non-designation of the WSA would have short and long-term adverse impacts on wilderness values. Timber harvesting and potential mineral exploration would impair naturalness throughout the WSA; thus, the potential as wilderness would be lost forever. Because of the WSA's relatively small size and ecological characterization, non-designation would have virtually no effect on diversity in the National Wilderness Preservation System.

Visual Resources. Under this option, VRM classes would be adopted as described in the affected environment. Scenic quality in most of the WSA would be protected by the VRM Class II management objectives, but could be degraded in the Class IV areas where changes can subordinate the original landscape character.

Transportation. Future proposals for rights-of-way could be approved following a non-designation decision by Congress.

Utility and Communication Facilities. In this alternative, future proposals for such facilities would be handled on a case-by-case basis and could be approved following a non-designation decision by Congress.

Economic Impacts. An annual harvest of 469 MBF of timber would support approximately $63,000 in local personal income and 6 man-years of employment. Income produced by livestock grazing and recreation would not be affected.

Consistency With Other Plans. Eagle County does not have written plans or policies concerning additional wilderness designation.

All Wilderness Option Impacts

Soils. Soil conditions would remain essentially unchanged unless exploration and development within pre-FLPMA mineral leases occur. Prohibition of timber harvesting and other

surface-disturbing activities would benefit soils by precluding soil disturbances that might otherwise occur.

Water Quality. Water quality would remain essentially unchanged, but would be benefited since deterioration would not occur as a result of surface-disturbing activities.

Minerals. Wilderness designation would withdraw 11,940 acres from appropriation under the mining laws and from leasing under the mineral leasing laws, subject to valid existing rights as of the date of designation since designation would not be expected to occur until after the December 31, 1983 withdrawal date established for existing wilderness in the Wilderness Act (Section 4(d)3). Based on the identified absence of locatable or saleable minerals, wilderness designation would have no adverse impacts on these minerals. The withdrawal from mineral leasing would not affect existing leases, but would preclude renewal or new leasing from occurring. Pre-FLPMA leases are considered to be valid existing rights and exploration and development may occur even though they may cause impairment to wilderness values. However, the activities may be regulated to prevent unnecessary or undue degradation of the land and its resources or to afford environmental protection.

Aquatic Wildlife. Wilderness designation would protect aquatic habitat and aquatic species in Castle Creek from deterioration caused by surface-disturbing activites.

Terrestrial Wildlife. Wilderness designation would prevent habitat disruption and stress caused by surfce disturbing activties and protect elk calving areas from disturbing activities.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option except that wilderness designation may affect the location or design of improvements. The BLM's Wilderness Management Policy allows construction of new improvements for resource protection and more effective management.

Vegetation. Wilderness designation would benefit vegetation by preventing removal or alteration and allowing natural ecological processes to continue to occur. Prohibition of timber harvesting would prevent reduction of the severe fire hazard.

Forestry. Timber management and harvesting would not occur.

Recreation Resources. Only primitive types of recreation would occur. Hunting, hiking, camping, and fishing would not be affected. Upon wilderness designation, the WSA would be closed to ORV use but the adverse impact would be low because of the relatively low use that is presently occurring. However, the lack of additional legal access to the WSA and the ORV closure would not satisfy the desires of the Colorado Division of Wildlife and hunters for additional motorized access to and within the WSA. Wilderness designation could cause an overall increase in use as a result of increased exposure of the area, but this increase would be low, especially since legal access to the WSA would remain limited.

Existing ROS settings would not change. Wilderness designation would protect the semi-primitive nonmotorized setting and the recreational features and attractions identified within the WSA.

Wilderness Values. Wilderness designation would have short and long-term benefits to wilderness values by providing additional protection. The natural character and outstanding opportunities for primitive and unconfined recreation and solitude would be preserved. Preservation of wilderness values would in turn protect the identified supplemental values.

Designation of the WSA would have little effect on providing wilderness opportunities within a day's drive of major population centers, would not help balance the geographic distribution of wilderness, and would not expand the diversity of landforms and ecosystems.

With the possible exception of impacts from mineral exploration and development, the WSA would be manageable as wilderness over the long term. Because the probability of oil and gas exploration and development cannot be predicted, the impacts on manageability also cannot be predicted. However, there are no limiting physical factors (such as topography) that would limit potential exploration, thus, increasing the potential for manageability conflicts.

Visual Resources. In this option, the entire WSA would be managed as VRM Class I. The management objective for Class I allows primarily for natural ecological changes which would provide additional protection of the WSA's visual qualities.

Transportation. Any future applications for rights-of-way would be rejected.

Utility and Communication Facilities. Any future applications for such facilities would be rejected.

Economic Impacts. The prohibition of timber harvesting would preclude harvesting of 469 MBF of timber annually, thus precluding the associated increase of $60,000 in local income and 6 man-years of employment. However, alternative supplies of timber exist within and near the resource area. Income produced by livestock grazing and recreation would not be affected.

Consistency With Other Plans. Consistency would be the same as in the No Wilderness Option.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as nonsuitable for wilderness designation. Non-designation of the WSA would allow timber harvesting in the area considered to have the greatest potential for management of the spruce-fir forest type in the resource area. Timber harvesting would reduce the fuel load and the severe fire hazard which currently exists. When compared with other existing and potential wildernesses on a regional, state, or national basis, the WSA contains a similar ecosystem and provides similar opportunities for solitude and primitive and unconfined recreation. Designation of the WSA would not significantly expand wilderness opportunities within a day's drive of major population centers and would not balance the geographic

distribution of ecosystems or wilderness in general. Thus, the WSA would not be a significant potential addition to the National Wilderness Preservation System. Finally, non-designation would prevent future wilderness manageability conflicts that could result from potential mineral exploration.

Resource Protection Alternative

No Wilderness Option Impacts

Soils. The prohibition of timber harvesting within the semi-primitive nonmotorized ROS class (6,545 acres) would benefit soils by preventing surface disturbances. Timber harvesting would be allowed on the remaining 5,395 acres of the WSA and could increase erosion by 428 tons/year. Additional adverse impacts to soils could occur as a result of potential mineral exploration, but the impacts cannot be determined until the extent of mineral exploration would be known.

Water Quality. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative, but on a lesser degree because of the prohibition of timber harvesting within the semi-primitive nonmotorized ROS class.

Minerals. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Aquatic Wildlife. In this alternative, aquatic habitat improvement projects would be implemented on Castle, Norman, and Catamount Creeks to benefit the fisheries. However, low flows would remain a limiting factor. Adverse impacts resulting from decreases in water quality from timber harvesting would be the same as in the No Wilderness Option in the Continuation of Current Management alternative, but to a lesser degree because of the prohibition of timber harvesting in the semi-primitive nonmotorized ROS class.

Terrestrial Wildlife. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative but to a lesser degree because of the prohibition of timber harvesting in the semi-primitive nonmotorized ROS class. The unsuitable zoning for utility and communication facilities would provide protection of elk calving areas.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative except that total use would be 3,794 AUMs, a reduction of 453 AUMs.

Vegetation. Timber harvesting would cause a loss of vegetation but would also reduce the severe fire hazard by reducing the fuel load. The prohibition of timber harvesting in the semi-primitive nonmotorized ROS class (6,545 acres) would prevent losses of vegetation, but would not allow reduction of the fire hazard in this portion of the WSA. Potential mineral exploration and development could also destroy vegetation in the areas of operation. Reclamation might not completely mitigate the losses of vegetation, with a net loss of vegetation or change in vegetation type.

Forestry. In this alternative, timber harvesting would be prohibited within the semi-primitive nonmotorized ROS class and only productive forest lands in the semi-primitive motorized ROS class would be managed and available for commercial harvesting. Approximately 750 acres and 5.1 MMBF of spruce-fir and 2,340 acres and 6.8 MMBF of Douglas fir would be available for harvesting. On a sustained yield basis, approximately 99 MBF of timber could be harvested annually.

Recreation Resources. In this alternative, the semi-primitive nonmotorized ROS class (6,545 acres) would be designated as the Castle Peak Recreation Lands and would be closed to off-road vehicle ORV use. In addition, a 1/2-mile corridor around the recreation lands would be designated as limited to ORV use with use limited to designated roads and trails. The designation and ORV closure and limitation would protect the semi-primitive nonmotorized setting and prevent conflicts between motorized and nonmotorized activities. In addition, the unsuitable and sensitive classifications for utility and communication facilities would provide protection of the semi-primitive nonmotorized ROS class. The adverse impacts on ORV use would be low since very little use presently occurs within the areas that would be closed. Aquatic habitat improvements could enhance fishing opportunities by increasing fishing success.

Additional legal access to the WSA proposed by other resource programs would result in moderate to high increases in recreational use for all activities. The additional legal access would satisfy the desires of the Colorado Division of Wildlife and hunters for additional motorized access to the WSA, but motorized use within the WSA would still be restricted.

Wilderness Values. The prohibition of timber harvesting and unsuitable zoning for utility and communication facilities in the semi-primitive nonmotorized ROS class would protect naturalness on 4,198 acres of the WSA. Naturalness in the remaining 2,347 acres of the semi-primitive nonmotorized ROS class would receive some protection through the prohibition of timber harvesting and the sensitive zoning for utility and communication facilities. Adverse impacts on naturalness could occur if such facilities would be proposed since the protective stipulations would reduce, but might not eliminate, the impacts on naturalness. However, potential mineral exploration and development could cause losses of naturalness within the entire semi-primitive nonmotorized area. Timber harvesting on the remaining 5,345 acres of the WSA would impair naturalness and result in the loss of wilderness potential. The recreation lands designation and ORV closure and limitation would preserve opportunities for primitive types of recreation and solitude. Because of the WSA's relatively small size and ecological characterization, non-designation would have virtually no effect on diversity in the National Wilderness Preservation System.

Visual Resources. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Transportation. Additional legal access to the WSA would be acquired. Future proposals for rights-of-way within the WSA could be approved following a non-designation decision by Congress.

Utility and Communication Facilities. In this alternative, a zoning classification for such facilities would be implemented. The elk calving areas within the WSA (6,207 acres) would be zoned as unsuitable and any future proposals would be rejected. Approximately 4,198 acres of the semi-primitive nonmotorized ROS class would be included in the unsuitable classification

because of the elk calving areas. The remaining 2,374 acres of the semi-primitive nonmotorized ROS class would be zoned as sensitive. This classification identifies areas where restrictive stipulations would be necessary to mitigate impacts. The remainder of the WSA would be zoned as suitable for consideration of such facilities.

Economic Impacts. Livestock forage allocations would be decreased by 453 AUMs annually which would reduce local personal income by approximately $20,000. The annual harvest of 99 MBF of timber would support approximately $13,000 in local personal income. The prohibition of timber harvesting in the semi-primitive nonmotorized ROS zone would prevent the harvest of 370 MBF annually and the associated increase of $50,000 in local income. Improved access to the WSA would increase recreation use, but most of this increase would likely be displaced from other areas within the resource area; thus, the economic effect would be minimal.

Consistency With Other Plans. Consistency with other plans would be the same as in the Continuation of Current Management Alternative.

All Wilderness Option Impacts

Although management of various resource programs would change in this alternative as described in the No Wilderness Option, the impacts on most resources would essentially be the same as in the All Wilderness Option in the Continuation of Current Management Alternative. The few exceptions are described below.

Aquatic Wildlife. Habitat improvements proposed for Norman and Catamount Creeks would be incompatible with wilderness and the fisheries would not be developed. Specific habitat improvement projects for Cattle Creek would be evaluated on a case-by-case basis to determine if they would be consistent with wilderness management.

Recreation Resources. Preservation of the WSA as wilderness would cause the recreation lands designation to be duplicative of wilderness designation.

Economic Impacts. Impacts from livestock grazing and recreation would be the same as in the No Wilderness Option of this alternative.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as suitable for wilderness designation. Even though resource conflicts would exist, diversity in the National Wilderness Preservation System would not be significantly affected, and manageability as wilderness would not be absolutely assured because of potential mineral conflicts, the recommendation is consistent with the objective of this

alternative which emphasizes the protection of natural and cultural values, especially the protection of fragile and unique resource values. Wilderness designation would provide the greatest protection of wilderness values and scenic, wildlife, and recreational values.

Economic Development Alternative

No Wilderness Option Impacts

Soils. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative except there would be additional short-term increases in erosion from vegetative conversions to increase water yield. However, the additional adverse impact would be low.

Water Quality. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative except that vegetative conversions to increase water yield would cause low short-term decreases in water quality due to increased siltation.

Water Yield. In this alternative, vegetation would be converted to increase water yield. Potentially, 40 percent of the conifer vegetation and 50 percent of the aspen could be clearcut in patches 5 to 8 tree heights in diameter and 50 percent of the mountain shrub vegetation could be converted to grass or clearcut. The potential increase in water yield from these conversions would be 822 to 2,400 acre-feet/year (average of 1,600 acre-feet/year). The overall benefit of the increased water yield on the Colorado and Eagle River drainages would be low.

Minerals. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Aquatic Wildlife. In this alternative, aquatic habitat improvement projects would be implemented on Castle, Norman, and Catamount Creeks to improve fisheries. This habitat improvement could be further benefited by increases in water yield since low flows are one of the existing factors which limit productivity. Timber harvesting and potential mineral exploration and development could adversely affect aquatic habitat and wildlife because of decreased water quality from siltation.

Terrestrial Wildlife. All wildlife species could be adversely affected in the short term by timber harvesting and potential mineral exploration as a result of habitat disruption and stress caused by human activity and noise; however, the overall impact would be low. Elk calving areas would not be significantly affected by timber harvesting since timber harvesting would be prohibited between May 1 and June 15. The calving areas would be further protected by the unsuitable zoning classification for utility and communication facilities.

Livestock Grazing. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Vegetation. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative except to a greater degree because of the vegetative conversions to increase water yield.

Forestry. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Recreation Resources. In this alternative, the existing semi-primitive nonmotorized ROS class would be changed to semi-primitive motorized. Some of the roads used for timber harvesting would remain open for public use. The changed area would be designated as limited to off-road vehicle use with use limited to designated roads and trails. This change would help satisfy the desires of the Colorado Division of Wildlife and hunters for additional motorized access into the area. The ORV limitation would allow for both motorized and nonmotorized activities and help reduce conflicts. The change of class would have moderate adverse impacts based on the scarcity of semi-primitive nonmotorized settings on public lands. However, the overall impact would be low because setting preferences for the major recreational activities that are occurring within the WSA are almost equal for semi-primitive nonmotorized and semi-primitive motorized settings.

Aquatic habitat improvements could enhance fishing opportunities by increasing fishing success.

Additional legal access to the WSA and the provision of motorized use within the WSA would result in moderate to high increases in recreational use for all activities and would satisfy the desires of the Colorado Division of Wildlife and hunters for additional motorized access.

Wilderness Values. Vegetative conversions, timber harvesting, and potential mineral exploration would impair naturalness throughout the WSA; thus, wilderness potential would be lost forever. The change of the existing semi-primitive nonmotorized ROS class to semi-primitive motorized and allowing motorized use within the area would reduce the opportunities for primitive and unconfined recreation and solitude. Because of its relatively small size and ecological characterization, non-designation would have virtually no effect on diversity in the National Wilderness Preservation System.

Visual Resources. In this alternative, approximately 1,199 acres in the eastern portion of the WSA would be changed from VRM Class II to VRM Class III to allow vegetative conversions. The classes in the remainder of the WSA would not be changed. Scenic quality in the Class III area would be degraded by the vegetative conversions and additional degradation could occur since any future proposals would be subject to the less restrictive Class III management objectives. The overall adverse impact would be low because the area is not within the viewshed of major travel routes.

Transportation. Impacts would be the same as in the No Wilderness Option in the Resource Protection Alternative.

Utility and Communication Facilities. In this alternative, a zoning classification for such facilities would be implemented. Elk calving areas within the WSA (6,207 acres) would be zoned as unsuitable and any future proposals would be rejected. The remainder of the WSA would be zoned as suitable for consideration of such facilities.

Economic Impacts. Impacts from livestock grazing and timber harvesting would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative. Impacts from recreation would be the same as in the No Wilderness Option in the Resource Protection Alternative.

All Wilderness Option Impacts

Although the management of various resource programs would change in this alternative as described in the No Wilderness Option, the impacts on most resources would be the same as in the All Wilderness Option in the Continuation of Current Management Alternative. The few exceptions are described below.

Water Yield. Vegetative conversions to increase water yield would not occur and water yield from the WSA would not be increased.

Aquatic Wildlife. Impacts would be the same as in the All Wilderness Option in the Resource Protection Alternative.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as nonsuitable for wilderness designation. Non-designation of the WSA would allow management of other resources which would be incompatible with wilderness including aquatic habitat improvements, vegetative conversions, timber harvesting, and motorized recreation opportunities. The Castle Peak area is considered to have the greatest potential for management of the spruce-fir forest type in the resource area. Timber harvesting would reduce the fuel load and the severe fire hazard that currently exists. When compared with other existing and potential wildernesses on a regional, state, or national basis, the WSA contains a similar ecosystem and provides similar opportunities for solitude and primitive and unconfined recreation. Designation of the WSA would not significantly expand wilderness opportunities within a day's drive of major population centers and would not balance the geographic distribution of ecosystems or wilderness in general. Thus, the WSA would not be a significant potential addition to the National Wilderness Preservation System. Finally, non-designation would prevent future wilderness manageability conflicts that could result from potential mineral exploration.

Preferred Alternative

No Wilderness Option Impacts

Management of, and impacts on, all resources would be the same as in the No Wilderness Option in the Economic Development Alternative, with the exceptions that are described below.

Water Yield. In this alternative, 50 percent of the aspen vegetation could potentially be clearcut in patches 5 to 8 tree heights in diameter to increase water yield. The potential increase in water yield from these conversions would be 45 to 75 acre-feet/year (average of 60 acre-feet/year). The overall benefit of the increased water yield on the Colorado and Eagle River drainages would be minimal.

Terrestrial Wildlife. Impacts would be the same as in the No Wilderness Option of the Economic Development Alternative except the elk calving area would be zoned as sensitive for utility and communication facilities. Protective stipulations would be identified to mitigate impacts to calving areas.

Recreation Resources. Impacts would be the same as in the No Wilderness Option of the Economic Development Alternative except ORV use in the entire WSA would be limited to designated roads and trails. This limitation would restrict ORV use within the WSA but would allow for some motorized recreation opportunities.

Visual Resources. Impacts would be the same as in the No Wilderness Option in the Continuation of Current Management Alternative.

Utility and Communication Facilities. In this alternative, the zoning classification for such facilities for the entire WSA would be sensitive. This classification identifies areas where protective stipulations would be necessary to reduce impacts.

All Wilderness Option Impacts

Management of, and impacts on, all resources would be the same as in the All Wilderness Option in the Economic Development Alternative.

Partial Wilderness Option Impacts

No partial wilderness option was developed for this WSA in this alternative.

Alternative Recommendation and Rationale

The entire WSA is recommended as nonsuitable for wilderness designation. The rationale is the same as in the Economic Development Alternative.

Comparative Analysis of Alternatives

The Resource Protection Alternative would provide the greatest benefit to wilderness values in the WSA since the entire WSA would be recommended as suitable for wilderness designation, thus preserving all wilderness values and protecting related supplemental values. In all other

alternatives, the potential as wilderness would be lost in the entire WSA, primarily as a result of losses of naturalness caused by other resource activities.

Forestry would be adversely affected in the Resource Protection Alternative since no management or harvesting would occur, but would not be affected in all other alternatives since the entire WSA would be available for management and commercial harvesting. Reduction of the severe fire hazard which currently exists would be directly related to timber harvesting. The fire hazard would not be reduced in the Resource Protection Alternative, but would be reduced in all other alternatives.

Other than potentially affecting the design or location of new range improvements, wilderness designation or non-designation would have no effect on livestock grazing in any alternative.

In the Resource Protection Alternative, wilderness designation would protect terrestrial wildlife habitat and elk calving areas from disturbance. However, proposed management, including the zoning classifications for utility and communication facilities, would protect the elk calving areas in the Economic Development and Preferred Alternative under a non-wilderness situation. Because wilderness designation would restrict aquatic habitat improvements, aquatic wildlife would be adversely affected in the Resource Protection Alternative and benefited in the Economic Development and Preferred Alternatives.

Management of recreation resources would be compatible with wilderness designation in the Resource Protection Alternative and with non-designation in the Economic Development and Preferred Alternatives. In the Resource Protection Alternative, wilderness designation would provide greater protection of the semi-primitive nonmotorized setting and primitive types of recreation opportunities. In the Economic Development and Preferred Alternatives, non-designation would be consistent with the provision of motorized recreation opportunities within the WSA. In the Continuation of Current Management Alternative, the semi-primitive nonmotorized setting would not be protected.

Visual resources would benefit most in the Resource Protection Alternative because of the additional protection resulting from wilderness designation and management under VRM Class I objectives. In the Economic Development Alternative, low adverse impacts to visual resources would occur because of the change of 1,199 acres from VRM Class II to Class III and degradation of visual quality. Visual resources would not be affected in the Continuation of Current Management and Preferred Alternatives since existing classes would not change.

The only significant economic effect from wilderness designation would be from the prohibition of timber harvesting. In the Resource Protection Alternative, approximately $63,000 in potential additional income would be lost. However, $50,000 of this income would be lost in the No Wilderness Option of this alternative.

Public Comments

Seventeen public comments were received on this WSA during the intensive inventory. Ten comments favored WSA identification, six were opposed to identifying the unit as a WSA, and one comment did not make a recommendation. Specific items mentioned in those comments which favored WSA identification were that the fences do not detract from naturalness; lack of notoriety leaves the area surprisingly unmarked by man; there are only a few slight imprints of man; imprints are substantially unnoticeable; rehabilitation has begun on most ways; a little work and time will rehabilitate old roads; most imprints are unnoticeable and more could be removed; the topography and vegetation lend themselves to solitude; there is excellent

solitude; there is solitude and recreation due to the rolling topography, scattered forests, deep grasses, and snow; the area is quiet; vegetative screening enhances primitive recreation opportunities; opportunities exist for wilderness recreation; the unit is outstanding for primitive sports; winter and summer recreation; the area is used for hunting, photography, camping, and hiking, and supplemental values include the variety of ecosystems, scenery, abundant wildlife, water, unusual geologic formations, possible vertebrate fossils, aspen forests, and meadows at higher elevations, uniqueness of vegetation and topography among Colorado units, outstanding vistas including views of the Flat Tops, and that designation would protect important deer fawning and elk calving areas. Those comments opposed to WSA identification stated the fences were physically and mentally confining; impacts of fences, ways, and water developments are prominent throughout the area; there are 20 miles of unmaintained roads; several miles of ditch line; 70 stock water developments; the area is fenced and cross-fenced; very evident hunter camps are in the unit; flights over the unit are noticeable, there is an intensity of sights and sounds of aircraft and trains; the unit is less than three miles from Interstate-70, Highway 6 and 24, and the Denver and Rio Grande railroad; trains are audible and solitude is broken; livestock and oil and gas use inhibit recreation opportunities; the unit is a scenic area for family groups to drive in to camp; rehabilitation would do inestimable damage to management of the land; the unit is used for livestock and wildlife and is one of the top two forage producing areas in the state; it would be impossible to maintain fences or water developments without machinery; timber in the unit needs harvesting; there are potential water development sites and potential oil and gas exploration; and the unit contributes to the economic and social stability of Eagle County and should remain non-wilderness.

The final intensive inventory decision to identify the unit as a WSA was appealed to the Interior Board of Land Appeals. The appeal stated the decision was incorrect because it disregarded the obvious physical disqualifications of the unit as a WSA. The appellant felt the decision attempted to justify the multiple and obvious imprints of man by repetitious opinion that the numerous severe marks of man are minor or minimal and that the decision attempted to excuse the conspicuous existence of man's marks by rationalizing that the prodigious evidence is well-screened by vegetation. He further stated that "to merely camouflage flaws does not vindicate them." The appeal also disagreed with the rehabilitation criterion by stating the decision was erroneously premised on the contention that imprints have the capability of being rehabilitated through natural forces or hand labor, and that the "universal criteria for wilderness is the origin and measurement of naturalness and not that which might be fabricated or refurbished by human toil."

Public workshops were held in May, 1982 to obtain comments on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. Eighteen comments concerning the Castle Peak WSA were received. All of the comments were general in nature and either supported or opposed designation of the WSA or identified a preference for a particular alternative. Eleven comments supported wilderness designation and seven comments opposed designation.

The Eagle County Commission was also briefed on the Continuation of Current Management, Resource Protection, and Economic Development Alternatives. The commission generally felt the WSA should be identified nonsuitable to provide for more diversity of use and were particularly concerned about the need of Castle Peak for communication sites, the potential of timber harvesting, and the management of small wildernesses.

APPENDIX 1

WILDERNESS STUDY POLICY AND PLANNING CRITERIA

The primary goal of the BLM wilderness study process is to recommend for wilderness designation those areas for which it has been determined, through the multiple resource planning process and public involvement, that wilderness is the most appropriate alternative use of the land and its resources. The two planning criteria and six quality standards described below will be used in making the analysis on which that determination will be based. These criteria and quality standards will be applied to BLM wilderness study areas (WSAs) through the BLM planning process, and each criterion and quality standard will be fully considered and documented in determining whether a WSA is more suitable for wilderness or for other uses and in making all BLM wilderness recommendations--both "suitable for preservation as wilderness" and "nonsuitable".

Criterion No. 1. Evaluation of Wilderness Values

Consider the extent to which each of the following components contributes to the overall value of an area for wilderness purposes.

a. Mandatory wilderness characteristics: The quality of the area's wilderness characteristics--size, naturalness, and outstanding opportunities for solitude or primitive recreation.

b. Special Features: The presence or absence, and the quality of the optional wilderness characteristics--ecological, geological, or other features of scientific, educational, scenic, or historical value.

c. Multiple resource benefits: The benefits to other multiple resource values and uses which only wilderness designation could ensure.

d. Diversity in the National Wilderness Preservation System: Consider the extent to which wilderness designation of the area under study would contribute to expanding the diversity of the National Wilderness Preservation System from the standpoint of each of the factors listed below:

(1) Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

(2) Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers.

(3) Balancing the geographic distribution of wilderness.

The analysis should consider--in separate categories--Federal and State lands designated as wilderness, areas officially recommended for wilderness, and other Federal and State lands under wilderness study (the State lands referred to here are those involved in State government's wilderness programs).

Criterion No. 2. Manageability

The area must be capable of being effectively managed to preserve its wilderness character.

Quality Standard No. 1. Energy and Mineral Resource Values

Recommendations as to an area's suitability or nonsuitability for wilderness designation will reflect a thorough consideration of any identified or potential energy and mineral resource values.

Quality Standard No. 2. Impacts on Other Resources

Consider the extent to which other resource values or uses of the area would be foregone or adversely affected as a result of wilderness designation.

Quality Standard No. 3. Impact of Nondesignation on Wilderness Values

Consider the alternative use of land under study if the area is not designated as wilderness, and the extent to which wilderness values of the area would be foregone or adversely affected as a result of this use.

Quality Standard No. 4. Public Comment

In determining whether an area is suitable or nonsuitable for wilderness designation, the BLM wilderness study process will consider comments received from interested and affected publics at all levels--local, state, regional, and national. Wilderness recommendations will not be based exclusively on a vote-counting majority rule system. The BLM will develop its recommendations by cosidering public comment in conjunction with its analysis of a wilderness study area's multiple resource and social and economic values and uses.

Quality Standard No. 5. Local Social and Economic Effects

In determining whether an area is suitable or nonsuitable for wilderness designation, the BLM will give special attention to adverse or favorable social and economic effects, as identified through the wilderness study process, which designation would have on local areas.

Quality Standard No. 6. Consistency with Other Plans

In determining whether an area is suitable or nonsuitable for wilderness designation, the BLM will consider and document the extent to which the recommendation is consistent with officially approved and adopted resource-related plans of other Federal agencies, State and local governments, and Indian tribes (and the policies and programs contained in such plans), as required by FLPMA and the BLM planning regulations.

APPENDIX 2

EXISTING AND POTENTIAL WILDERNESS WITHIN A DAY'S DRIVING TIME OF COLORADO SMSA'S

The areas listed in this appendix are within a day's driving time (5 hours) of at least one of the SMSAs listed in Table 1. The areas shown include existing designated wildernesses, and all areas with wilderness potential, including units under appeal to the Interior Board of Land Appeals. Areas with partial wilderness wilderness recommendations are listed twice; the suitable portion is listed under the "Areas Officially Recommended for Wilderness" section and the nonsuitable portion is listed under the "Other Areas Under Wilderness Review" section. Partial wilderness recommendations are indicated by an asterisk by the acreage figure for the area.

The abbreviations used in this appendix are as follows:

DEIS = Draft Environmental Impact Statement; RMP = Resource Management Plan; MFP = Management Framework Plan (A = Amended; T = Transitional), ISA = Instant Study Area, NP = National Park; NM = National Monument; FP = Further Planning; WSA = Wilderness Study Area; SCS = New Mexico Statewide Consolidated Study; UT SCS = Utah Statewide Consolidated Study; WY SCS = Wyoming Statewide Consolidated Study; AE = Administratively Endorsed.

DESIGNATED WILDERNESS

Colorado

Unit Name	Acreage	Administering Agency
Black Canyon of the Gunnison NM	11,180	NPS
Great Sand Dunes NM	33,450	NPS
Mesa Verde NP	8,100	NPS
Big Blue	97,700	USFS
Cache La Poudre	9,400	USFS
Collegiate Peaks	159,900	USFS
Comanche Peaks	67,500	USFS
Eagles Nest	133,915	USFS
Flat Tops	235,230	USFS
Holy Cross	116,870	USFS
Hunter-Fryingpan	74,450	USFS
Indian Peaks	73,811	NPS,USFS
La Garita	101,286	USFS
Lizard Head	41,496	USFS
Lost Creek	106,000	USFS
Maroon Bells-Snowmass	174,429	USFS
Mount Evans	73,000	USFS
Mount Massive	26,000	USFS
Mount Sneffels	16,200	USFS

Unit Name	Acreage	Administering Agency
Mount Zirkel	139,898	USFS
Neota	10,220	USFS
Never Summer	14,100	USFS
Raggeds	59,200	USFS
Rawah	73,899	USFS
South San Juan	127,721	USFS
Weminuche	465,690	USFS
West Elk	176,412	USFS
New Mexico		
Bandelier NM	23,267	NPS
Chama River Canyon	50,300	USFS
Cruces Basin	18,000	USFS
Dome	5,200	USFS
Latir Peak	20,200	USFS
Pecos	223,300	USFS
Sandia	31,100	USFS
San Pedro Parks	41,132	USFS
Wheeler Peak	20,500	USFS
Wyoming		
Savage Run	15,160	USFS

AREAS OFFICIALLY RECOMMENDED FOR WILDERNESS

Colorado

Unit Name	Acreage	Administering Agency	Study Status
American Flats (CO-030-217)	1,505*	BLM	MFP-A DEIS '82 (Suitable)
Beaver Creek (CO-050-016)	17,000*	BLM	MFP-A DEIS '82 (Suitable)
Browns Canyon (CO-050-002)	6,614	BLM	MFP-A DEIS '82 (Suitable)
Handles Peak (CO-030-231)	7,120*	BLM	MFP-A DEIS '82 (Suitable)
Needle Creek (CO-030-229B)	4,160*	BLM	MFP-A DEIS '82 (Suitable)

Unit Name	Acreage	Administering Agency	Study Status
Powderhorn ISA (CO-030-089)	44,951	BLM	ISA Report DEIS '80 (Suitable)
Red Cloud Peak (CO-030-208)	11,140*	BLM	MFP-A DEIS '82 (Suitable)
Sand Castle (CO-050-135)	1,644	BLM	MFP-A DEIS '82 (Suitable)
Weminuche Contiguous (CO-030-238B)	375*	BLM	MFP-A DEIS '82 (Suitable)
West Needle Contiguous (CO-030-229A)	4,540*	BLM	USFS DEIS '82 (Suitable)
Whitehead Gulch (CO-030-230B)	4,115*	BLM	MFP-A DEIS '82 (Suitable)
Dinosaur NM	205,672	NPS	AE
Rocky Mountain NP	240,030	NPS	AE
Colorado NM	13,842	NPS	AE
Spruce Creek	8,000	USFS	DEIS '80 (Suitable)
West Needle	15,800	USFS	DEIS '82 (Suitable)
Utah			
Dinosaur NM	39,537	NPS	AE
Wyoming			
Encampment	10,365	USFS	AE
Huston Park	31,345	USFS	AE
Laramie Peak	27,360	USFS	AE
Platte River	19,492	USFS	AE
Popo Agie	20,191	USFS	AE
Snowy Range	18,185	USFS	AE

OTHER AREAS UNDER WILDERNESS REVIEW

Colorado

Unit Name	Acreage	Administering Agency	Study Status
Adobe Badlands (CO-030-370B)	10,560	BLM	RMP DEIS '86

Unit Name	Acreage	Administering Agency	Study Status
American Flats (CO-030-217)	3,205*	BLM	MFP-A DEIS '82 (Nonsuitable)
Bangs Canyon (CO-070-130)	21,500	BLM	RMP DEIS '86
Beaver Creek (CO-050-016)	9,150*	BLM	MFP-A DEIS '82 (Nonsuitable)
Bill Hare Gulch (CO-030-085)	350	BLM	MFP-A DEIS '82 (Nonsuitable)
Black Canyon (CO-050-131)	2,300	BLM	USFS DEIS '83
Black Ridge Canyons (CO-070-113)	18,150	BLM	RMP DEIS '86
Black Ridge Canyons West (CO-070-113A)	49,200	BLM	RMP DEIS '86
Black Mountain (CO-010-007A)	9,932	BLM	MFP-A DEIS '82
Bull Canyon (CO-010-001)	11,777	BLM	MFP-A DEIS Fall '82
Cahone Canyon (CO-030-265D)	8,385	BLM	RMP DEIS '84
Camel Back (CO-030-353)	10,900	BLM	RMP DEIS '86
Cross Canyon (CO-030-265)	8,440	BLM	RMP DEIS '84
Cross Mountain (CO-010-230)	14,081	BLM	MFP-A DEIS '83
Demaree Canyon (CO-070-009)	21,050	BLM	RMP DEIS '86
Diamond Breaks (CO-010-214)	31,480	BLM	RMP DEIS '85
Dinosaur NM (CO-010-224)	4,340	BLM	RMP DEIS '85
Dinosaur Adjacent N (CO-010-224A)	1,320	BLM	RMP DEIS '85
Dinosaur Adjacent N (CO-010-226)	4,880	BLM	RMP DEIS '85
Dinosaur Adjacent N (CO-010-228)	5,200	BLM	RMP DEIS '85
Dinosaur Adjacent N (CO-010-229D)	6,900	BLM	RMP DEIS '85
Dolores River Canyon (CO-030-290)	25,550	BLM	RMP DEIS '84
McKenna Peak (CO-030-286)	21,900	BLM	RMP DEIS '84
Dominquez Canyon (CO-070-150/CO-030-363)	75,800	BLM	RMP DEIS '86
Granite Creek (CO-070-132A)	3,120	BLM	Utah SCS DEIS '83

Unit Name	Acreage	Administering Agency	Study Status
Gunnison Gorge (CO-030-388)	19,560	BLM	RMP DEIS '86
Gunnison River (CO-070-150A)	11,600	BLM	RMP DEIS '86
Handies Peak (CO-030-241)	11,740*	BLM	MFP-A DEIS '82 (Nonsuitable)
High Mesa Grasslands	680	BLM	ISA Report '80 (Nonsuitable)
Larson Creek (CO-030-086)	880	BLM	MFP-A DEIS '82 (Nonsuitable)
Little Bookcliffs Wildhorse Area (CO-070-066)	26,525	BLM	RMP DEIS '86
Lower Grape Creek (CO-050-014)	11,220	BLM	MFP-A DEIS '82 (Nonsuitable)
McIntyre Hills (CO-050-013)	16,800	BLM	MFP-A DEIS '82 (Nonsuitable)
Menefee Mountain (CO-030-251)	7,360	BLM	RMP DEIS '84
South Shale Ridge (CO-070-031)	33,195	BLM	RMP DEIS '86
Needle Creek (CO-030-229B)	380*	BLM	MFP-A DEIS '82 (Nonsuitable)
Needle Rock	80	BLM	ISA Report '80 (Nonsuitable)
North Sand Dunes	791	BLM	ISA Report '80 (Nonsuitable)
Oil Spring Mountain (CO-010-046)	17,740	BLM	MFP-A DEIS Fall '82
Papa Keal (CO-050-137)	1,020	BLM	USFS DEIS '83
Rare Lizard and Snake	443	BLM	ISA Report '81 (Nonsuitable)
Redcloud Peak (CO-030-208)	29,435*	BLM	MFP-A DEIS '82 (Nonsuitable)
San Luis Hills (CO-050-141)	10,240	BLM	MFP-A DEIS '81 (Nonsuitable)
Sewemup Mesa (CO-070-176/CO-030-310A)	19,140	BLM	RMP DEIS '86
Slumgullion Slide (CO-030-211)	1,640	BLM	USFS DEIS '82

Unit Name	Acreage	Administering Agency	Study Status
South Piney Creek (CO-050-132B)	870	BLM	USFS DEIS '83
Skull Creek (CO-010-003)	13,740	BLM	MFP-A DEIS Fall '82
Sparkling Gulch/Friends Creek (CO-030-088/213)	1,840	BLM	USFS DEIS '82
Squaw-Papoose Canyon (CO-030-265A)	4,680	BLM	RMP DEIS '84
Tabeguache Creek (CO-030-300)	7,270	BLM	RMP DEIS '86
The Palisade (CO-070-132)	26,050	BLM	RMP DEIS '86
Troublesome (CO-010-155)	8,250	BLM	RMP DEIS '83
Unnamed (CO-010-00N4B)	4,100	BLM	RMP DEIS '85
Upper Grape Creek (CO-050-017)	10,200	BLM	MFP-A DEIS '82 (Nonsuitable)
Weber Mountain (CO-030-252)	6,320	BLM	RMP DEIS '84
Weminuche Contiguous (CO-030-238B)	1,605*	BLM	MFP-A DEIS '82 (Nonsuitable)
West Cold Springs (CO-010-208)	14,587	BLM	RMP DEIS '85
West Needles Contiguous (CO-030-229A)	1,240*	BLM	USFS DEIS '82 (Nonsuitable)
Whitehead Gulch (CO-030-230B)	4,115*	BLM	MFP-A DEIS '82 (Nonsuitable)
Willow Creek (CO-010-002)	13,368	BLM	MFP-A DEIS Fall '82
Windy Gulch (CO-010-007C)	12,274	BLM	MFP-A DEIS Fall '82
Buffalo Peaks	56,950	USFS	WSA
Cannibal Plateau	31,990	USFS	FP
Davis Peak	8,100	USFS	FP
Fossil Ridge	54,700	USFS	WSA
Greenhorn Mountain	22,330	USFS	WSA
Oh-Be-Joyful	5,500	USFS	WSA
Lost Creek	23,000	USFS	FP
Piedra	41,500	USFS	WSA
Sangre De Cristo	218,632	USFS	WSA
Service Creek	39,860	USFS	FP
South San Juan (V-Rock)	32,800	USFS	WSA
Spanish Peaks	19,570	USFS	WSA
Vasquez Peak/St. Louis Peak	12,800	USFS	FP
Wheeler Geologic	11,390	USFS	WSA
Williams Fork	74,770	USFS	FP

New Mexico

Unit Name	Acreage	Administering Agency	Study Status
Ah-She-Sle-Pah (NM-010-009)	6,000	BLM	SCS DEIS '83
Bisti (NM-010-057)	3,520	BLM	SCS DEIS '83
Cabezoh (NM-010-022)	7,235	BLM	SCS DEIS '83
Chamisa (NM-010-021)	11,090	BLM	SCS DEIS '83
Denazin (NM-010-004)	19,000	BLM	SCS DEIS '83
Empedrado (NM-010-063)	8,410	BLM	SCS DEIS '83
Ignacio Chavez (NM-010-020)	32,248	BLM	SCS DEIS '83
La Lena (NM-010-063A)	9,359	BLM	SCS DEIS '83
Navajo Peak (NM-010-059)	7,750	BLM	SCS DEIS '83
Ojito (NM-010-024)	11,200	BLM	SCS DEIS '83
Sabinosa (NM-010-055)	15,760	BLM	SCS DEIS '83
San Antonia (NM-010-035)	7,050	BLM	SCS DEIS '83
Columbine-Hondo	46,000	USFS	FP

Utah

Black Ridge Canyons West (UT-060-116/117)	51,000	BLM	UT SCS DEIS '83
Bull Canyon (UT-080-419)	520	BLM	CO MFP-A DEIS Fall '82
Cold Springs Mountain (UT-080-103)	235	BLM	CO RMP DEIS '85
Cold Springs West (UT-080-104)	130	BLM	CO RMP DEIS '85
Cottonwood Canyon (UT-060-100C)	64,670	BLM	UT SCS DEIS '83
Cross Canyon (UT-060-227, Adjoins CO-030-265)	1,000	BLM	UT SCS DEIS '83
Daniel's Canyon (UT-080-414)	2,475	BLM	UT SCS DEIS '83
Diamond Breaks (UT-080-113)	3,900	BLM	CO RMP DEIS '85
Flame Canyon (UT-060-100B)	48,449	BLM	UT SCS DEIS '83

Unit Name	Acreage	Administering Agency	Study Status
Granite Creek (UT-060-122)	4,800	BLM	UT SCS DEIS '83
Squaw and Papoose Canyons (UT-060-227)	6,580	BLM	UT SCS DEIS '83
West Water Canyon (UT-060-118)	30,800	BLM	UT SCS DEIS '83

Wyoming

Adobe Town (WY-030-401)	33,000	BLM	MFP-T DEIS '83
Adobe Town (WY-040-408)	52,710	BLM	MFP-T DEIS '83
Alkali Basin East Sandunes (WY-040-316/317)	12,800	BLM	MFP-T DEIS '82
Alkali Draw (WY-040-311)	16,990	BLM	MFP-T DEIS '82
Bennett Mountains (WY-030-304)	5,722	BLM	RMP DEIS '86
Buffalo Hump (WY-040-306)	10,300	BLM	MFP-T DEIS '82
Copper Mountain (WY-030-111)	6,858	BLM	RMP DEIS '85
Devlis Playground (WY-040-401)	15,646	BLM	MFP-T DEIS '82
Encampment River Canyon (WY-030-301)	3,380	BLM	RMP DEIS '86
Ferris Mountains (WY-030-407)	20,495	BLM	MFP-T DEIS '83
Gardner Mountain (WY-060-201)	6,423	BLM	RMP DEIS '83
Honeycomb Buttes (WY-040-323)	41,620	BLM	MFP-T DEIS '82
Mill Creek (WY-040-335)	1,300	BLM	MFP-A DEIS '86
Oregon Buttes WY-040-324)	5,700	BLM	MFP-T DEIS '82
Pedro Mountains (WY-030-305)	5,990	BLM	RMP DEIS '86
Prospect Mountain (WY-030-303)	1,099	BLM	RMP DEIS '86
Red Creek Badlands (WY-040-406)	8,020	BLM	MFP-T DEIS '82
Red Lake (WY-040-318)	9,515	BLM	MFP-T DEIS '82
Sand Dunes (WY-040-307)	27,200	BLM	MFP-T DEIS '82
South Pinnacles (WY-040-313)	10,826	BLM	MFP-T DEIS '82

Unit Name	Acreage	Administering Agency	Study Status
Sweetwater Canyon (WY-030-101)	9,056	BLM	RMP DEIS '85
Sweetwater Rocks (WY-030-120)	6,316	BLM	RMP DEIS '85
Sweetwater Rocks (WY-030-122)	12,789	BLM	RMP DEIS '85
Sweetwater Rocks (WY-030-123A)	7,041	BLM	RMP DEIS '85
Sweetwater Rocks (WY-030-123B)	6,429	BLM	RMP DEIS '85
Twin Buttes (WY-040-402)	8,630	BLM	MFP-T DEIS '82
Whitehorse Creek (WY-040-325)	4,028	BLM	MFP-T DEIS '82

Source: Kidner (1981)

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